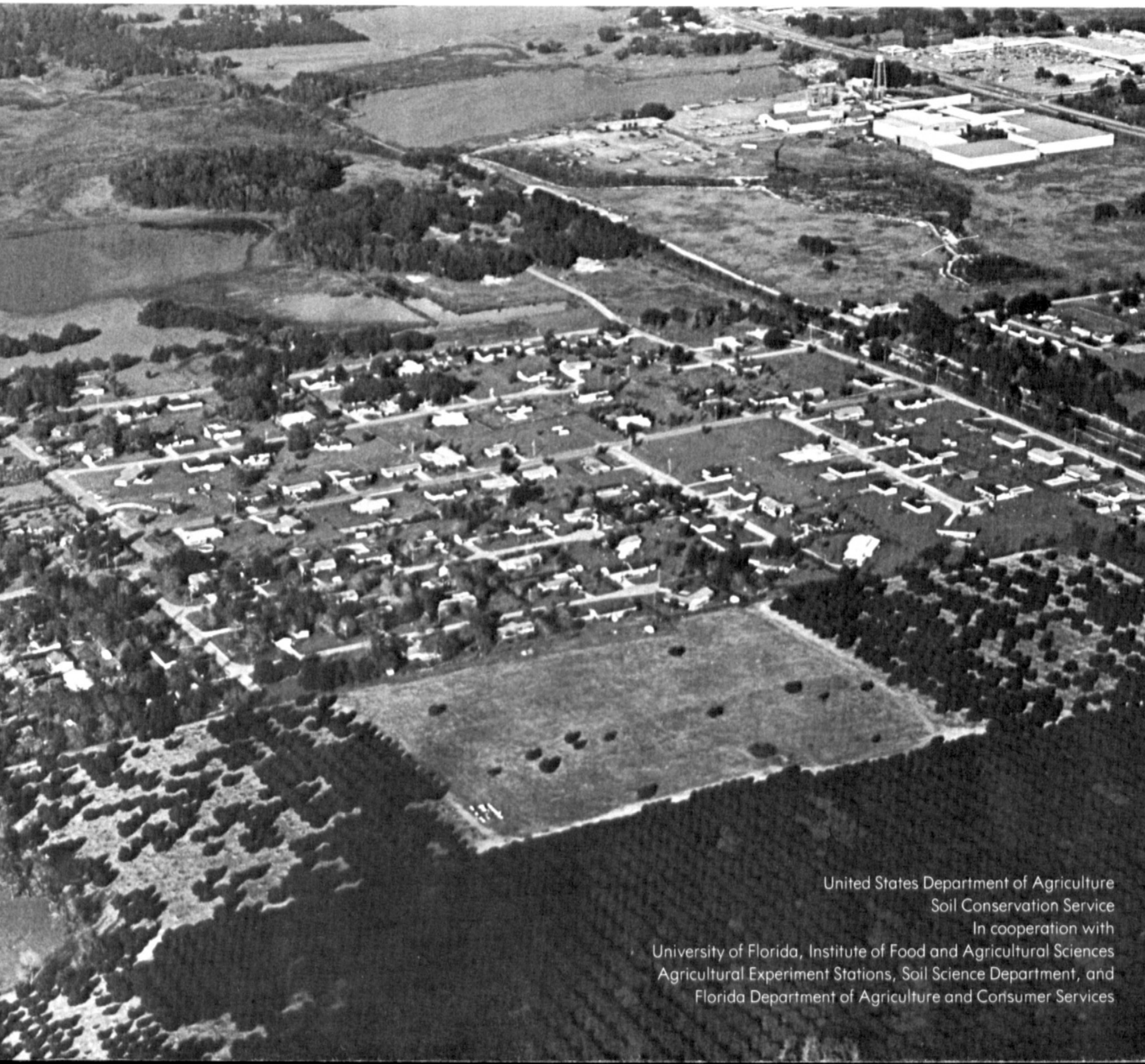
Soil survey of

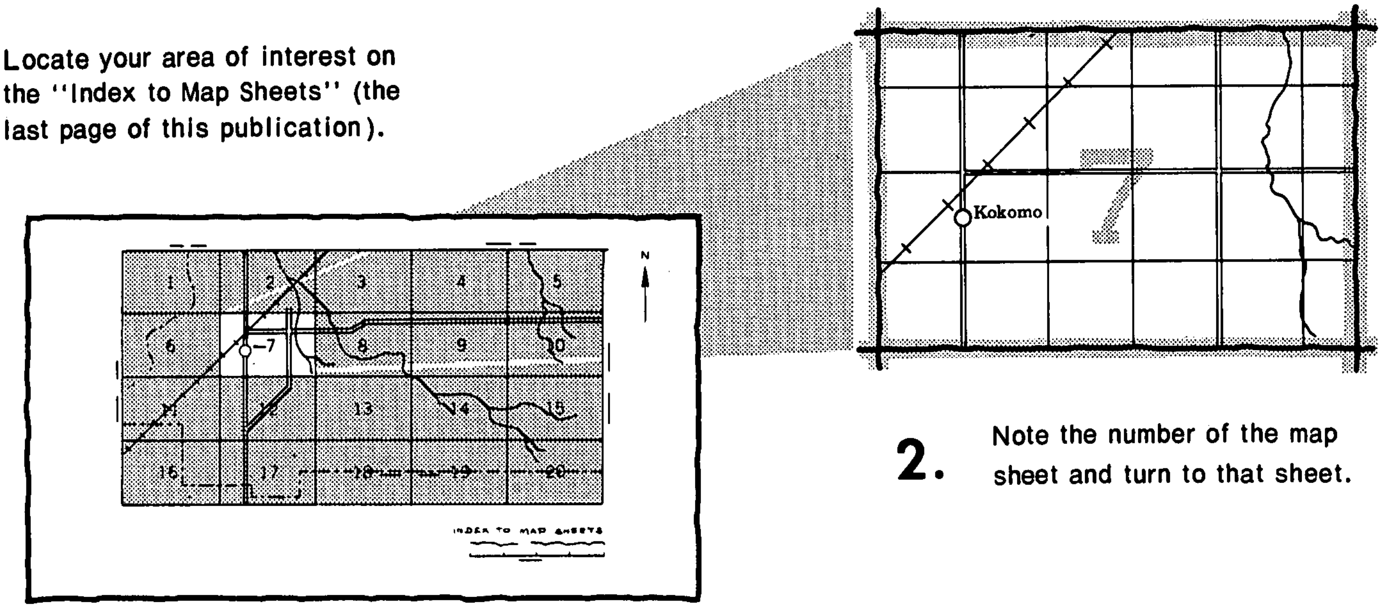
Pasco County, Florida



United States Department of Agriculture
Soil Conservation Service
In cooperation with
University of Florida, Institute of Food and Agricultural Sciences
Agricultural Experiment Stations, Soil Science Department, and
Florida Department of Agriculture and Consumer Services

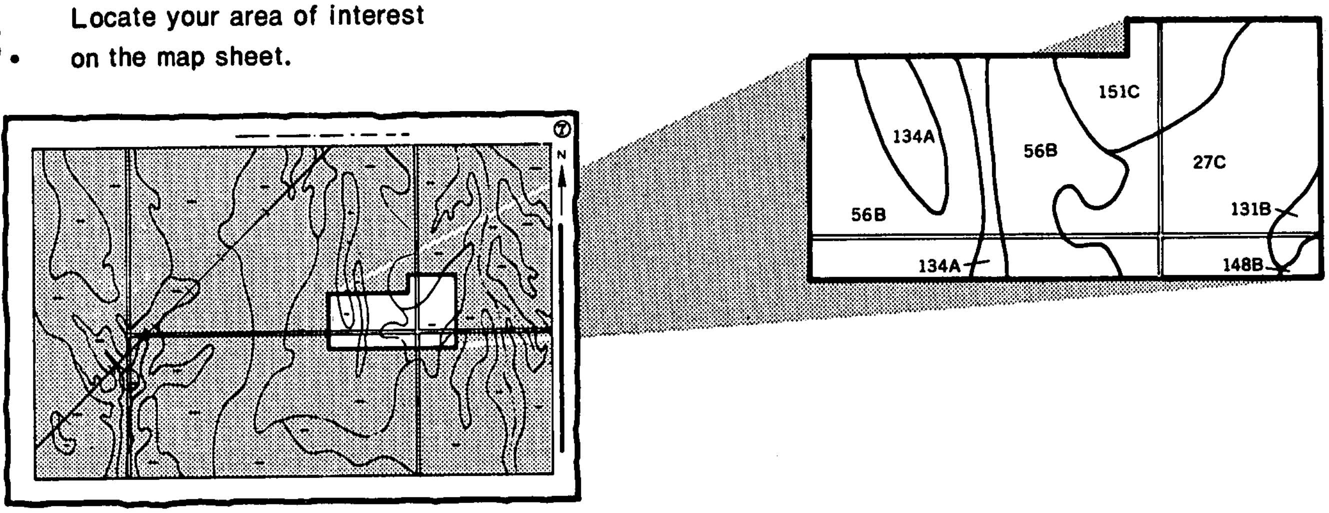
HOW TO USE

1. Locate your area of interest on the "Index to Map Sheets" (the last page of this publication).



2. Note the number of the map sheet and turn to that sheet.

3. Locate your area of interest on the map sheet.



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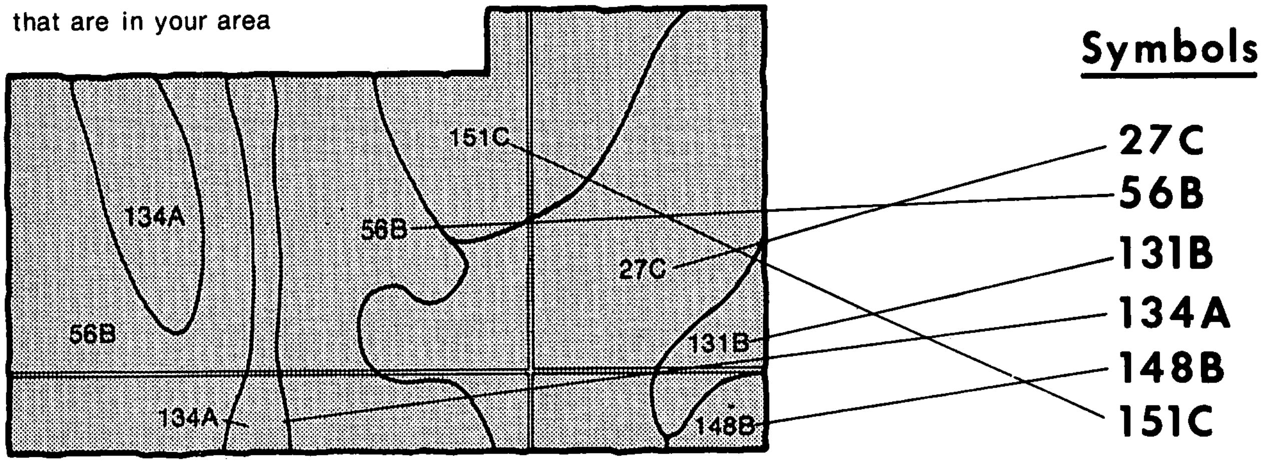

Symbols

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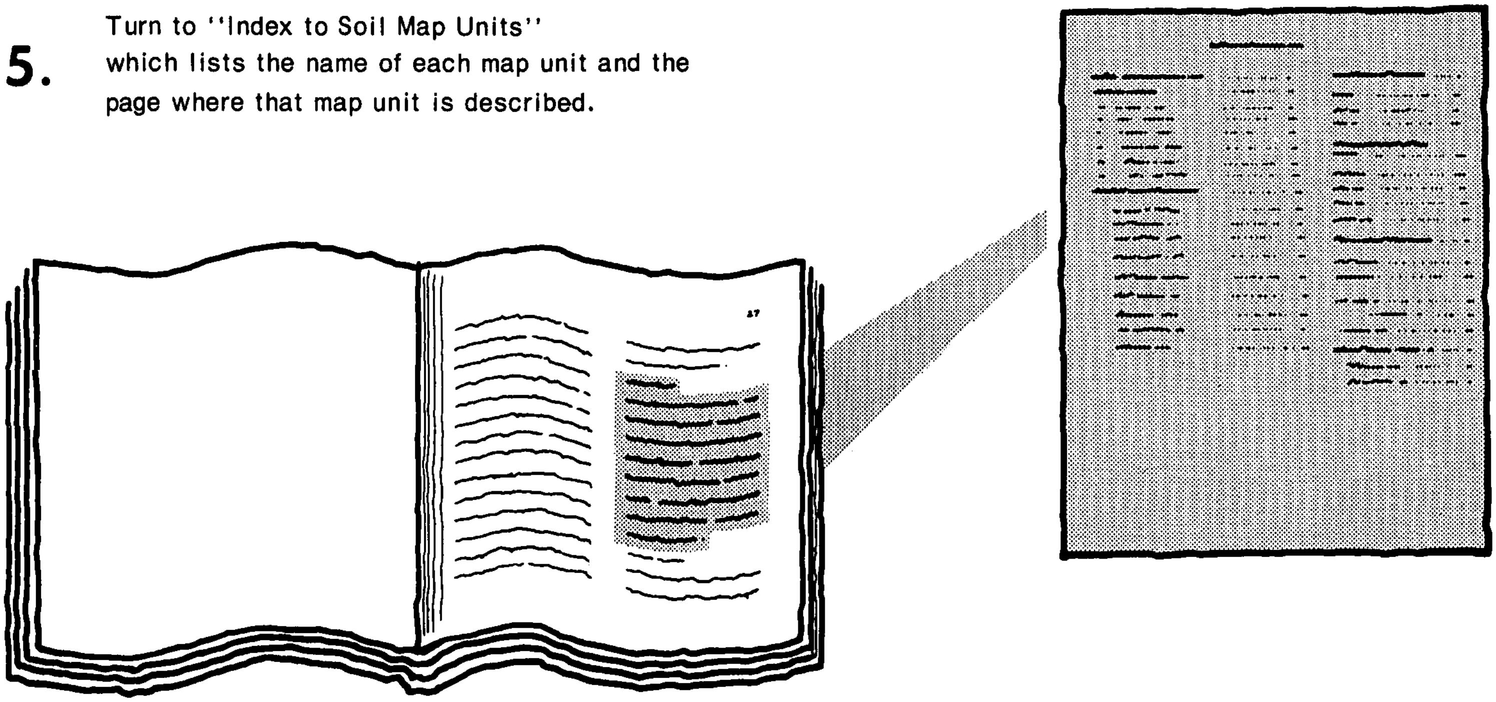
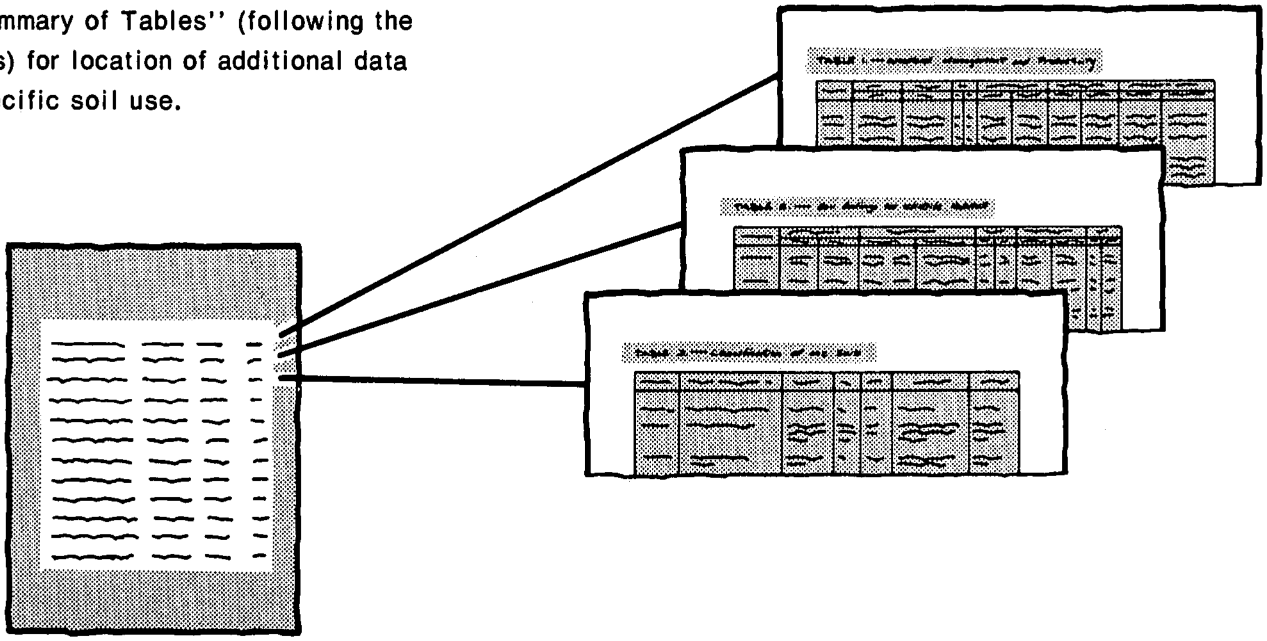
56B
131B
134A
148B
151C

THIS SOIL SURVEY

5. Turn to "Index to Soil Map Units" which lists the name of each map unit and the page where that map unit is described.



6. See "Summary of Tables" (following the Contents) for location of additional data on a specific soil use.



7. Consult "Contents" for parts of the publication that will meet your specific needs. This survey contains useful information for farmers or ranchers, foresters or agronomists; for planners, community decision makers, engineers, developers, builders, or homebuyers; for conservationists, recreationists, teachers, or students; for specialists in wildlife management, waste disposal, or pollution control.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other federal agencies, state agencies including the Agricultural Experiment Stations, and local agencies. The Soil Conservation Service has leadership for the federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was performed in the period 1976-79. Soil names and descriptions were approved in 1980. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1979. This survey was made cooperatively by the Soil Conservation Service; the University of Florida, Institute of Food and Agriculture Sciences, Agricultural Experiment Stations, Soil Science Department; and the Florida Department of Agriculture and Consumer Services. It is part of the technical assistance furnished to the Pasco Soil and Water Conservation District. The Pasco County Board of County Commissioners contributed financially to the acceleration of the survey.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Cover: This area of the Lake-Chandler map unit, on the general soil map, is south of Dade City along U.S. Highway 301. Areas adjacent to the highway are being developed for urban use. Other parts of the map unit are used for growing improved pasture grasses and citrus trees.

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foreword

This soil survey contains information that can be used in land-planning programs in Pasco County, Florida. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

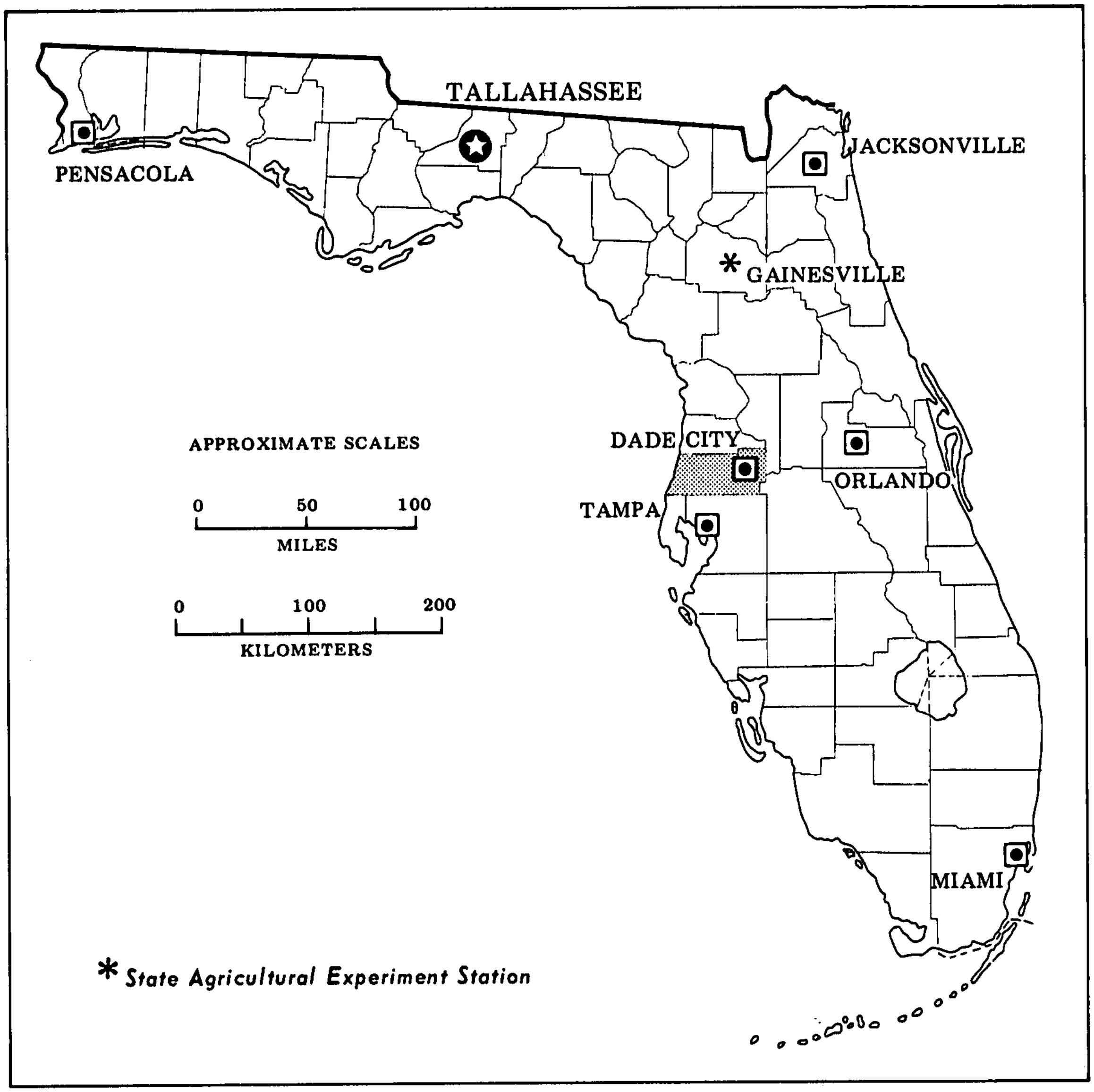
This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Soil Conservation Service or the Cooperative Extension Service.

William E. Austin

William E. Austin
State Conservationist
Soil Conservation Service



Location of Pasco County in Florida.

soil survey of
Pasco County, Florida

By Daniel L. Stankey, Soil Conservation Service

Soils surveyed by Daniel L. Stankey, Lloyd Law, Jr.
Robert L. Weatherspoon, and Adam G. Hyde

United States Department of Agriculture, Soil Conservation Service
in cooperation with
University of Florida, Institute of Food and Agricultural Sciences
Agricultural Experiment Stations, Soil Science Department
and Florida Department of Agriculture and Consumer Services

Pasco County is on the Gulf of Mexico, near the middle of Florida. It is bordered on the north by Hernando County, on the east by Polk and Sumter Counties, on the south by Hillsborough and Pinellas Counties, and on the west by the Gulf of Mexico.

The land area of the county is about 475,000 acres, or 742 square miles. About 7,076 acres, or 11 square miles, is state and federally owned. Most of this acreage is the Withlacoochee State Forest. Pasco County has about 8,649 acres of water in bodies of less than 40 acres and about 19,000 acres of salt and fresh water in bodies greater than 40 acres.

The county is approximately rectangular. At its widest points, it runs about 57 miles east to west and 27 miles north to south. Dade City, the county seat, is in the eastern part, about 8 miles from the eastern and northern county boundaries.

Agriculture is the main enterprise in the county. Trade and service industries are the largest nonagricultural enterprises. Other enterprises include production of wood, concrete, and metal products and processing of citrus and dairy and poultry products.

general nature of the county

In this section, the environmental factors that affect the use and management of soils in Pasco County are described. These factors are climate: historv and development; physiography, relief, and drainage; water resources; farming; transportation; and recreation.

climate

The climate of Pasco County is characterized by long, warm, relatively humid summers and mild, dry winters. About 60 percent of the annual rainfall occurs during the months of June through September. The driest months are November through February. Climatic data collected at St. Leo College in the period 1951-60 are summarized in table 1 (*9, 11*). A summary for the period 1951-74 shows the average rainfall as 54.63 inches. Extremes in annual rainfall recorded at the St. Leo station range from a high of 82.82 inches in 1900 to a low of 36.31 inches in 1961. Annual rainfall in the low, flat coastal areas of the western part of the county averages about 52 inches.

Most summer rainfall comes from localized afternoon or early evening thundershowers. During the period June through September, rainfall of at least 0.1 inch can be expected about 4 days out of every 10 days and rainfall of 1 inch or more can be expected 1 day out of 10. Daylong rains are rare in summer and are usually associated with a tropical storm. Summer showers are sometimes heavy, and 2 or 3 inches of rain may fall in 1 or 2 hours. Winter and spring rains are usually associated with large-scale continental weather patterns and are of longer duration. These rains are usually not intense and can last for periods of 24 hours or more.

Occasionally, large amounts of water are released over large areas. The greatest 24-hour rainfall recorded in the county, 9.17 inches, occurred on April 13, 1953. In winter and spring, rainfall of at least 0.1 inch per day can be expected about 1 day in 15 days, and rainfall of 1 inch or more can be expected about 1 day in 60.

The Gulf of Mexico and the numerous inland lakes have a moderating influence on both summer and winter temperatures. Coastal areas are slightly warmer in winter and cooler in summer than inland areas. Summer temperatures are fairly uniform from year to year and show little day-to-day variation. Afternoon temperatures reach 90 degrees F or slightly above with great regularity during the months of June through September. Temperatures seldom rise above about 96 degrees. Winter temperatures vary considerably from day to day as well as from year to year. This variation results from periodic invasions of cold, dry air masses from the north. The frequency of these cold wave invasions cannot be predicted. Some winters, occasionally several in succession, pass with few invasions of the cold air; others may bring several severe cold waves. These cold waves usually last for periods of 2 to 3 days. When they follow periods of relative warmth, the cold waves can cause considerable damage to tender crops and new growth.

Frost and freezing temperatures can be expected to occur in 8 out of 10 years. Temperatures of 28 degrees F or lower can be expected in 1 out of 10 years. A record low of 18 degrees F was recorded February 14, 1899, and again on December 13, 1962. Snowfall is rare and occurs about once in 20 years. The greatest recorded accumulation of snow, about 1.5 inches, occurred on January 19, 1977. The frost-free growing period ranges from about 314 days in the northeastern part of the county to about 345 days in the southwestern part (*3*). Freeze data shown in table 2 (*10*) were taken at St. Leo, Florida, and are representative of the county.

Hail falls at irregular intervals, during thundershowers. The hailstones are usually small and seldom cause much damage.

Tropical storms can affect the area any time during the period from early June through mid-November. These storms diminish in intensity quite rapidly as they move inland. The chance of winds reaching hurricane force (74 miles per hour or greater) in Pasco County in any given year is about 1 in 25. The heavy rains associated with these storms may cause considerable damage at areas distant from the storm center.

Extended periods of dry weather, or droughts, can occur in any season, but are most common in spring and fall. By definition, a drought occurs when the soil does not have enough available water for plants to maintain normal growth. In most years, there are periods when rainfall does not supply as much water as most crops need. During these periods, supplementary irrigation is needed for maximum crop production. Droughts in April and May are usually of shorter duration, but their effects are compounded by higher temperatures.

The average relative humidity in midafternoon is about 50 to 65 percent. Humidity is higher at night, and the average at dawn is about 85 to 95 percent. The sun shines more than 70 percent of the time possible in summer and more than 60 percent in winter. Prevailing winds in the area are generally southeasterly and easterly in spring and summer and northerly in fall and winter. Wind direction is influenced locally by convection forces inland and by the land-and-sea-breeze-effect near the coast. Windspeed usually ranges between 8 and 15 miles per hour during the day, but it nearly always drops below 8 miles per hour at night. March and April are the windiest months. High local winds of short duration occur occasionally in connection with thunderstorms in summer and with cold fronts in winter.

history and development

William G. Dalton, past president of the Pasco County Historical Society, prepared this section.

Pasco County was created by the Florida legislature on May 12, 1887. It had been the southern end of Hernando County, commonly called the "clabber end" by early settlers. The new county was named in honor of U.S. Senator Samuel Pasco. In a referendum held in 1889, Dade City was named as the county seat.

The Pasco County area has been inhabited since prehistoric times. A large number of archaeological sites showing human occupation as early as 9,000 B.C. are in the area. When Spanish explorers passed through the area in the sixteenth century, it was inhabited by Indians of the Muskogean language group.

In the early 1700's, a band of southern Creeks, the Seminoles, moved into the area. They were later joined by groups of escaped black slaves and remained until the first half of the nineteenth century, when they were forcibly moved to Oklahoma or driven south to the Everglades. Among the Seminole chiefs whose territories included parts of what is now Pasco County were Aripeka, Chipco, and Tiger Tail.

Following the opening battle of the Second Seminole War in 1835, a fort was built near present-day Lacoochee in the northeastern part of Pasco County. It was named in honor of Major Dade, who was killed in the battle. The signing of the Treaty of Fort Dade in 1836 ended the most active phase of the war, and the fort was abandoned in 1839. With the cessation of hostilities and the passage of the Armed Occupation Act of 1842, a number of families settled in the area. In 1845, the Fort Dade Post Office was established at White House plantation in what is now the northeastern part of Dade City. About the same time, the Tucker family planted the first orange grove in the area at their plantation near Richland (then called Tuckertown). In 1849, the U.S. Army rebuilt Fort Dade near the present site of Community General Hospital in Dade City. The fort was used as a refuge for settlers during the Third Seminole War.

Before the coming of the railroads in 1887, the principal communities in the survey area were Dade City, Fort Dade, Chipco, Lake Buddy, San Antonio, Tuckertown, and Hudson. The establishment of rail lines through the area made the production and shipment of oranges, tobacco, lumber, and naval stores highly profitable, and many small towns developed throughout the county. Most of these communities of the 1880's and 1890's disappeared when the virgin pine forests were cut down or after the Great Freeze of 1895, which severely damaged the citrus industry in the area. Tobacco became a principal crop for a period of around 20 years following the freeze. The pine lumber and turpentine industries continued well into the twentieth century. The cypress lumber industry developed more slowly. Both pine and cypress are still being logged in Pasco County.

At present the principal communities in Pasco County are Dade City, Zephyrhills, New Port Richey, Holliday, and San Antonio. Dade City was known as Fort Dade until 1881. Zephyrhills was established in 1911 as a retirement center for veterans of the Union Army. New Port Richey was founded in 1915, adjacent to the older town of Port Richey, which was established by Captain Aaron Richey in the 1880's. San Antonio was the center of a religious colony established by Judge Edwin Dunne in 1881. Holliday appeared as part of the extensive development of the county's west coast in the 1960's.

During the Second World War, two of the largest citrus-packing plants in the world were established in Pasco County. One of these plants was largely responsible for developing the procedure for making orange juice concentrate.

The coastal area of the county was undeveloped until the second half of the twentieth century, when it became favored as a retirement area. In recent years, huge residential developments have appeared around U.S. Highway 19, causing the county's population center to shift to the west coast.

The principal educational institutions serving the county are a public community college, a public junior college with campuses at Dade City and New Port Richey, and a private 4-year college.

physiography, relief, and drainage

Pasco County is in the central or mid-peninsular physiographic zone of the Florida Peninsula. The county is characterized by discontinuous highlands in the form of ridges separated by broad valleys. The ridges are above the static level of the water in the aquifer, but the broad valleys are below it. Broad shallow lakes are common on the valley floors, and smaller deep lakes are on the ridges. Based on physiography, the county can be divided into five areas (*13*): the Coastal Swamps, the Gulf Coastal Lowlands, the Brooksville Ridge, the Tsala Apopka Plain, and the Western Valley (fig. 1).

The county is underlain by several thousand feet of sedimentary rock, principally various limestone formations (*4*). A very gently sloping, very flat limestone terrain extends inland from the Gulf of Mexico. This is the Coastal Swamps area. It extends the length of the county and ranges up to about 2 miles in width. As one goes inland, the terrain changes very gradually from shallow marine water to salt marshes to fresh water swamps. Much of the area is shallow to limestone, and because there are no barrier formations, sands did not accumulate and beaches did not form. In some areas, the limestone has dissolved and pockets of organic materials have accumulated. As a result, some places have a mixture of organic and mineral soils.

The soils of the Coastal Swamps area are very poorly drained, and the marsh areas are subject to daily flooding by normal tides. The vegetation ranges from salt-tolerant grasses in the marshes to stands of mixed hardwoods on more elevated areas. Elevation ranges from sea level to about 10 feet above sea level. Some urban development has taken place in the area. In some places limestone is mined.

The Gulf Coastal Lowlands lie between the Coastal Swamps and the Brooksville Ridge and the Western Valley. In the northern part of the county they conjoin the Brooksville Ridge, and in the southern part they conjoin the Western Valley area at Zephyrhills Gap. The elevation ranges between about 10 and 50 feet above sea level. The area consists mainly of pine and sawpalmetto flatwoods and has numerous small ponds and broad grassy sloughs. The soils are predominantly nearly level, wet, and sandy. Some areas have deep, well drained and excessively drained sands which are relict sand dunes. Much of the urban development in the county has occurred on the better drained parts of the lowlands. Much of the wetter acreage is used as pastureland.

The Brooksville Ridge extends south from Hernando County to about the area of Zephyrhills. It extends about from Florida Highway 581 on the west to U.S. Highway 301 on the east. Considerable local relief has developed along the ridge as a result of the numerous sinkholes. The elevation varies from about 70 to 300 feet over short distances. Clay Hill, 6 miles northwest of Dade City, reaches an altitude of 301 feet, while Lake Dowling, a sinkhole lake 0.7 mile away, is at an altitude of only 75 feet. There is little surface drainage. Most of the surface is covered by a few feet of sand. Near the western side of the ridge are thicker deposits of sand that may be old stabilized dunes. Natural vegetation on the deep sands is mainly turkey oak and scattered longleaf pine. Other areas consist of poorly drained to well drained, sandy to clayey soils that support pine and hardwoods. Much of the Brooksville Ridge has been cleared and is used for cultivated crops and pasture.

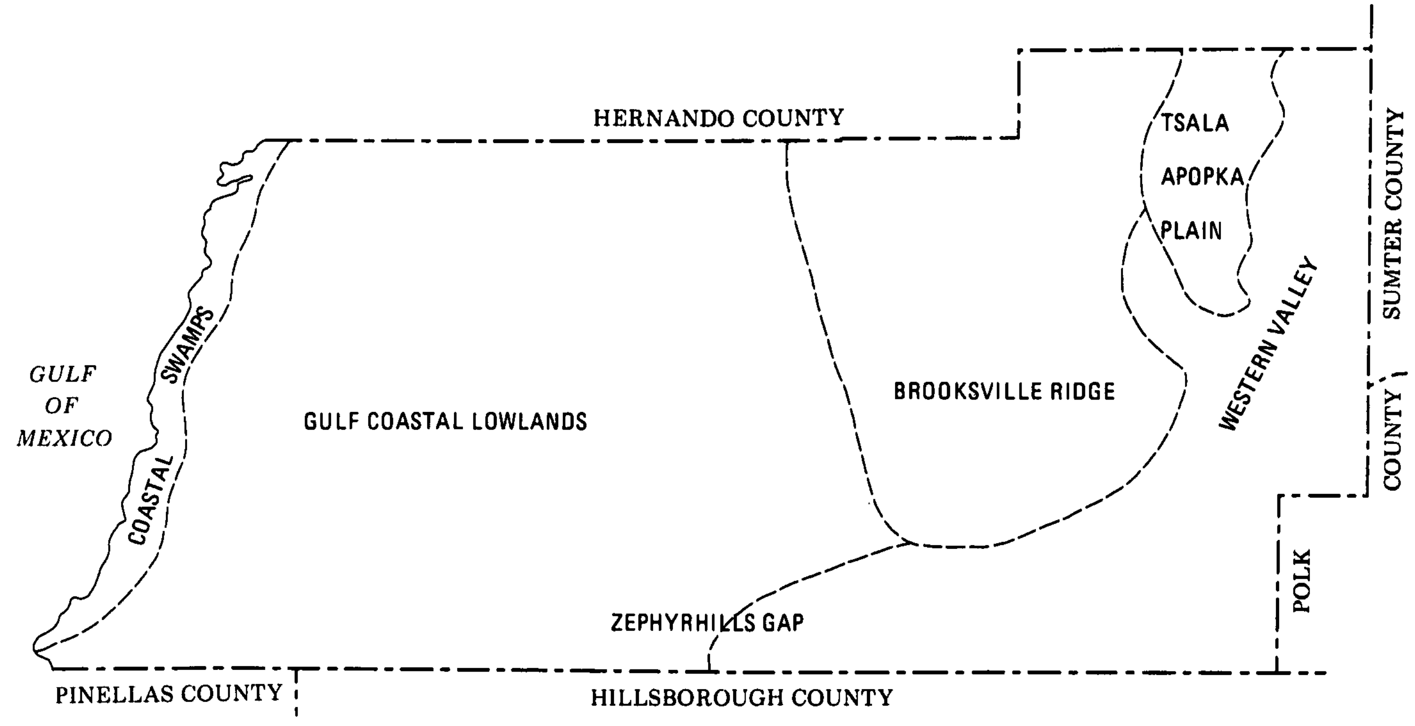


Figure 1.—Physiographic map of Pasco County, approximated after White (13).

The Tsala Apopka Plain extends south from Hernando County east of U.S. Highway 301 to about 3 miles north of Dade City. It is about 6 miles wide and ranges in elevation from about 75 to 85 feet above sea level. The area consists mostly of pine and sawpalmetto flatwoods. Numerous ponds, depressions, and broad grassy sloughs are present. The soils are mainly nearly level and wet and generally have a loamy subsoil. Most of this area remains in natural vegetation and is used primarily as woodland and wildlife habitat.

The Western Valley extends the length of the county on its eastern side. The Western Valley turns west at the termination of the Brooksville Ridge and unites with the Gulf Coastal Lowlands at Zephyrhills Gap. It contains the valleys of the Withlacoochee and Hillsboro Rivers and consists mainly of poorly drained sandy soils. The vegetation is mainly longleaf pine and sawpalmetto.

Most of the soils in the Western Valley have a loamy subsoil ranging from acid to alkaline over short distances. Outcroppings of limestone are common in some parts. Scattered throughout the Western Valley area are small to large, slightly depressional areas of sandy soils that support mixed swamp hardwoods and cypress. Much of the area remains in natural vegetation, but some areas have been cleared and planted to improved pasture and cultivated crops.

The drainage of the area has been studied (*12*). Much of the water falling on the county is returned to the atmosphere by evaporation and transpiration. The remainder enters the ground. Ultimately, all of this ground water flows into the Gulf of Mexico. It drains from the area through the underlying limestone and via a few surface streams. Streams are present only where materials of slow permeability overlie the limestone or the water level in the limestone is near the ground surface. The Pithlachascotee and Anclote Rivers drain the area west of U.S. Highway 41 and south of Florida Highway 52. The southeastern and south-central parts of the county are drained by tributaries of the Hillsborough River. The Withlacoochee River drains the eastern part of the county.

Some areas of the county have sinkhole drainage patterns. Bear Creek, for example, drains into Bear Sink and, when Bear Sink is full, into a second sinkhole. In periods when both of these sinks cannot drain the full water flow, the excess flows westward, via a poorly developed channel, across U.S. Highway 19 to the Gulf of Mexico. Several lakes east of Port Richey are drained by Rocky Sink.

Some parts of the county are drained by closed depressions. These are common in the drainage areas of streams. These closed depressions, which drain internally, generally provide adequate subsurface drainage during periods of normal rainfall. During very wet periods, however, the closed depressional drains may receive more water than they can release into the underlying limestone formation. Then, the closed depressions become flowing springs.

Ground-water drainage emerges as spring flow at or near the coast. Spring flow increases during wet periods, but there is a lag period in relation to the periods of rainfall inland. The water from the springs has a bicarbonate level of about 100 to 200 parts per million. The chloride content of the inland springs is low, and that of springs near the coast is much greater.

water resources

The Withlacoochee, Hillsborough, Pithlachascotee, and Anclote Rivers are the major permanent streams and surface drainage systems in the county. Numerous small streams and creeks are along the coast.

Springs, both fresh water and saline, occur in the county. The largest is Crystal Spring, which has a flow rate of 75 cubic feet per second. Most of the springs lie along the coastal areas, and some have submarine openings. The chloride content of these coastal springs ranges up to 10,000 parts per million.

About 195 lakes, ranging from about 1 to 693 acres in size, are in the county. Crews Lake is the largest. During extended dry periods, many of the lakes are greatly reduced in size and may even dry up completely.

Most of the water for industries, farmland, and homes in the county comes from wells (*5*). The wells range from about 60 to 1,000 feet in depth, but most are about 80 to 300 feet deep. These wells are drilled into the limestone formations of the Floridan Aquifer, which underlies the county. In sequence from the deepest formations, the aquifer in this area is composed of all or part of the Lake City Limestone; the Avon Park Limestone; the Inglis, Williston, and Crystal River Formations; and the Suwannee and Tampa Limestones. Undifferentiated deposits of sand and clay overlie the Tampa Limestone.

The quality of water from the various layers differs. Wells which produce water from the sand and clay overlay are little used because the water has a high iron concentration and is likely to be highly colored. Rather, about 90 percent of the wells are drilled into the hard portions of the limestone formations. Most of the limestone formations are hard throughout or have hard layers. The Williston and Crystal River Formations are soft and generally do not maintain a drilled opening. Most of the wells are drilled into the Tampa or Suwannee Limestones. Wells drilled into the Inglis Formation and the Avon Park and Lake City Limestones commonly provide the most water, but that water contains more sulfate than does water from overlying formations. Water from wells near the coast may have a high chloride content because of seawater encroachment or the geologic trapping of seawater in portions of the aquifer.

The piezometric surface of an aquifer is the imaginary surface to which water will rise in tightly cased wells that penetrate an artesian aquifer. Two piezometric highs have been noted in Pasco County. One of these is near Dixie and the other is in the St. Leo area. Water moves away from the local piezometric highs in all directions along hydraulic gradients toward the rivers and the Gulf of Mexico.

Recharge of the aquifer by rainfall is by direct movement of surface water into drain sinks, by downward percolation through the overlying sand and clay, and by lateral movement along the hydraulic gradient.

farming

Farming has always been important to the economy of Pasco County. Farming is diversified largely because of the variety of suitable soils. Land-use patterns are changing, and according to the 1974 Census of Agriculture, the percentage of the land area in farms dropped from 71.3 percent in 1969 to 66.1 percent in 1974. The number of farms also decreased during this period, but the size of the average farm increased slightly. Acreage in citrus trees, rangeland, and woodland has gradually been decreasing as more and more land is used for urban development. It is estimated that in 1977 there was about 45,000 acres of urban and built-up land in the county, and this acreage has been increasing at the rate of about 2,000 acres per year.

According to the Bureau of Economic and Business Research at the University of Florida, Pasco County ranked 10th among the state's 67 counties in sales of agricultural commodities in 1976. The county ranked 2nd in sales of poultry and poultry products, 8th in sales of oranges, and 9th in sales of dairy products.

About 58 percent of the total farm income in 1974 was from the sale of livestock, poultry, and their products, and 40 percent was from the sale of fruits and berries. Poultry and egg production is scattered throughout the county, with the largest concentration in the Zephyrhills area. Beef and dairy cattle herds are scattered throughout the county. About 122,600 acres of the county is used for pasture and rangeland. In 1978, 33,367 acres was planted to citrus and nearly 90 percent of this acreage was in oranges. Soybeans are one commonly grown field crop. Some acreage is used for vegetable production. Commonly grown vegetables are watermelon, peppers, eggplant, squash, and cherry tomatoes. Strawberry production is increasing in acreage. Hay production is also increasing.

transportation

Most of Pasco County is served by good transportation facilities, including county, state, and federal highways. Several interstate trucking firms serve the county.

Rail and bus services are available. Scheduled airlines serve the county at the Tampa International airport. Air cargo service is available at the Zephyrhills municipal airport, and three other private airstrips have been established.

recreation

A variety of recreation facilities are available in Pasco County. These include marinas for fresh and salt water boaters and fishermen, hiking and nature trails, campgrounds, golf courses, tennis courts, and parks and playgrounds. A number of areas in the Withlacoochee State Forest have been set aside for camping. Anclote Key State Park, on Anclote Key, about 6 miles from the mainland, has the only natural sand beach in the county.

how this survey was made

Soil scientists made this survey to learn what soils are in the survey area, where they are, and how they can be used. They observed the steepness, length, and shape of slopes; the size of streams and the general pattern of drainage; the kinds of native plants or crops; and the kinds of rock. They dug many holes to study soil profiles. A profile is the sequence of natural layers, or horizons, in a soil. It extends from the surface down into the parent material, which has been changed very little by weathering or by plant roots.

The soil scientists recorded the characteristics of the profiles they studied and compared those profiles with others in nearby counties and in more distant places. They classified and named the soils according to nationwide uniform procedures. They drew the boundaries of the soils on aerial photographs. These photographs show trees, buildings, fields, roads, and other details that help in drawing boundaries accurately. The soil maps at the back of this publication were prepared from aerial photographs.

The areas shown on a soil map are called map units. Most map units are made up of one kind of soil. Some are made up of two or more kinds. The map units in this survey area are described under "General soil map units" and "Detailed soil map units."

While a soil survey is in progress, samples of some soils are taken for laboratory measurements and for engineering tests. All soils are field tested to determine their characteristics. Interpretations of those characteristics may be modified during the survey. Data are assembled from other sources, such as test results, records, field experience, and state and local specialists. For example, data on crop yields under defined management are assembled from farm records and from field or plot experiments on the same kinds of soil.

But only part of a soil survey is done when the soils have been named, described, interpreted, and delineated on aerial photographs and when the laboratory data and other data have been assembled. The mass of detailed information then needs to be organized so that it can be used by farmers, rangeland and woodland managers, engineers, planners, developers and builders, home buyers, and others.

general soil map units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, a map unit consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in other units but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

The soils in the survey area vary widely in their potential or suitability for major land uses. For the soils in each map unit, table 3 shows the suitability and limitations for pasture use, the potential and limitations for woodland use, and the degree and kind of limitation for urban uses. The ratings are based on the practices commonly used in the survey area to overcome soil limitations. These ratings reflect the ease of overcoming the limitations. They also reflect the problems that will persist even if such practices are used.

Pasture consists of improved grasses grown extensively in the survey area. Woodland refers to areas of native trees. Urban uses include residential, commercial, and industrial developments. Recreation areas are campsites, picnic areas, ballfields, and other areas that are subject to heavy foot traffic.

soil descriptions

soils of the upland ridges

The seven map units in this group consist of excessively drained to poorly drained, nearly level to sloping soils on the uplands. Some soils are sandy throughout, some are sandy to a depth of less than 20 inches over loamy or clayey materials, and some are sandy to a depth of 40 to 80 inches over loamy material. These soils are scattered throughout the county but are less common in the southern and central parts.

1. Tavares-Adamsville-Narcoossee

Nearly level to gently sloping, moderately well drained and somewhat poorly drained soils that are sandy throughout; some have a dark-colored layer within a depth of 25 inches

This map unit is on uplands. One large area extends southwest from Crews Lake to Florida Highway 52, then turns south and parallels the coast to the Pinellas County line. In width, this area varies from 1 mile to about 8 miles. Another large area begins about 3 miles north of Land O' Lakes and extends south along Florida Highway 583 and U.S. Highway 41 to the Hillsborough County line. Smaller areas are scattered in the southwestern part of the county. The towns of New Port Richey and Elfers and several large developments are in this map unit.

The landscape is mainly one of broad, nearly level to gently sloping ridges. Interspersed are small ponds, swamps, and a few small sinks. Sand-bottom lakes ranging from about 5 to 160 acres are in some areas. The natural vegetation is mainly slash pine, longleaf pine, live oak, laurel oak, willow oak, water oak, blackjack oak, turkey oak, and post oak. The understory vegetation is greenbrier, sawpalmetto, pineland threeawn, creeping bluestem, lopsided indiangrass, panicum, purple lovegrass, and broomsedge bluestem.

This unit makes up about 64,160 acres, or about 13.5 percent of the land area of the county. It is about 34 percent Tavares soils, about 28 percent Adamsville soils, about 10 percent Narcoossee soils, and about 28 percent soils of minor extent.

Tavares soils are moderately well drained. Typically, the surface layer is very dark gray sand. Below this, to a depth of 86 inches or more, are layers of yellowish brown, light yellowish brown, very pale brown, and white sand.

Adamsville soils are somewhat poorly drained. Typically, the surface layer is very dark gray and grayish brown fine sand. The surface layer is underlain by layers of very pale brown, light gray, and white fine sand to a depth of 80 inches or more.

Narcoossee soils are somewhat poorly drained. Typically, the surface and subsurface layers are very dark gray and grayish brown fine sand. The subsoil consists of layers of dark brown and brown fine sand. Below this, to a depth of 80 inches or more, are layers of light brownish gray, very pale brown, and light yellowish brown fine sand.

Minor in this unit are Candler, Zolfo, Millhopper, Sparr, and Sellers soils.

Most of the acreage of this map unit is in natural vegetation. Large urban developments have been constructed in some areas of this unit. Other areas have been cleared and planted to citrus trees and improved pasture.

2. Candler-Tavares-Paola

Nearly level to sloping, excessively drained and moderately well drained soils that are sandy throughout; some have thin lamellae of loamy fine sand below a depth of 50 inches

This map unit is on uplands. It is found in two areas, both extending south from Hernando County. The largest area, between U.S. Highways 19 and 41, extends southwest along U.S. Highway 19 and narrows until it terminates about a mile south of Jasmine. The other area is around the towns of Trilby and Lacoochee and extends about 3 miles on either side of U.S. Highway 301. It rapidly narrows as it extends southward and terminates in the area of Buttonwood Lake. Bayonet Point is in this map unit.

The landscape is mainly one of broad, nearly level to sloping ridges interspersed with small ponds, swamps, and a few sinks. A few moderately large sand-bottom lakes are in the unit. The natural vegetation on Candler and Tavares soils is a mixture of turkey oak, bluejack oak, and post oak, scattered longleaf pine and slash pine, and a sparse understory of native grasses and annual forbs. On the Paola soils the natural vegetation is sand pine, scrub live oak, and scattered turkey oak and bluejack oak. In the swamps, the vegetation is bay, gum, and cypress trees and water-tolerant grasses and sedges.

This unit makes up about 39,840 acres, or about 8.4 percent of the land area of the county. It is about 53 percent Candler soils, 24 percent Tavares soils, 5 percent Paola soils, and 18 percent soils of minor extent.

Candler soils are excessively drained. Typically, the surface layer is grayish brown fine sand. Below this are layers of brown, brownish yellow, and yellow fine sand to a depth of 80 inches or more. Thin lamellae of loamy fine sand are below a depth of about 50 inches.

Tavares soils are moderately well drained. Typically, the surface layer is very dark gray sand. Below this, to a depth of 86 inches or more, are layers of yellowish brown, light yellowish brown, very pale brown, and white sand.

Paola soils are excessively drained. Typically, the surface layer is gray fine sand. Next is a white fine sand subsurface layer underlain by brownish yellow and very pale brown fine sand to a depth of 80 inches or more.

Minor in this unit are Adamsville, Basinger, Myakka, Pompano, and Sparr soils. These minor soils surround, or are in, the scattered low, wet areas.

Much of the acreage of this map unit remains in natural vegetation. Large areas have been cleared and used for urban development. Some areas have been planted to citrus trees or improved pasture.

3. Lake-Candler

Nearly level to sloping, excessively drained soils that are sandy throughout; some have thin lamellae of loamy fine sand below a depth of 50 inches

This map unit is on uplands. It is in the eastern part of the county and extends from slightly south of the Hernando County line along U.S. Highway 30l and Florida Highway 35A to Florida Highway 530. The unit varies in width from about 1 mile to 5 miles. Dade City, the county seat, is in this map unit.

The landscape is mainly one of broad, nearly level to gently sloping ridges and a few narrow, sloping hillsides. Small sinks and depressions are scattered throughout most of the unit. Small lakes and ponds are common. The natural vegetation is of turkey oak, blackjack oak, bluejack oak, post oak, live oak, scattered longleaf pine and slash pine, and an understory of scattered sawpalmetto, pineland threeawn, bluestem, paspalum, creeping lopsided indiangrass, chalky bluestem, panicum, purple lovegrass, and broomsedge bluestem. Water-tolerant trees and grasses are in the water areas.

This unit makes up about 35,600 acres, or about 7.5 percent of the land area of the county. It is about 55 percent Lake soils, 28 percent Candler soils, and about 16 percent soils of minor extent.

Lake soils are excessively drained. Typically, the surface layer is dark grayish brown fine sand. Below this, yellowish brown and brownish yellow fine sand extends to a depth of 80 inches or more.

Candler soils are excessively drained. Typically, the surface layer is grayish brown fine sand. Below this are layers of brown, brownish yellow, and yellow fine sand to a depth of 80 inches or more. Thin lamellae of loamy fine sand are below a depth of about 50 inches.

Minor in this unit are Adamsville, Basinger, Arredondo, Gainesville, Kendrick, Millhopper, Orlando, Placid, Sparr, and Zephyr soils. The Basinger, Placid, Sparr, and Zephyr soils are in or surround the wetter areas.

Most of the acreage has been cleared. Some areas have been planted to citrus trees and crops such as soybeans. Other areas have been planted to improved pasture. Some urbanization has taken place along U.S. Highway 301.

4. Tavares-Sparr-Adamsville

Nearly level to sloping, moderately well drained and somewhat poorly drained soils; some are sandy throughout, and others are sandy to a depth of 40 to 80 inches and loamy below

This map unit is on uplands. There are several scattered areas, dominantly in the eastern half of the county. Individual areas are irregular in shape. The largest, in the vicinity of Zephyrhills, is about 5 miles across at its widest part and 10 miles long. It extends southwest from near Richland to Florida Highway 579. Another area, which ranges up to about 4 miles in width, extends west from Florida Highway 581 to the Crews Lake area. San Antonio is in another area of this map unit, and Wesley Chapel is in the vicinity of another area.

The landscape is mainly one of broad, nearly level to gently sloping ridges and sloping hillsides. There are a few scattered sinkholes and wet areas. Lakes and ponds are common in some places. The natural vegetation is scattered longleaf pine, slash pine, turkey oak, blackjack oak, post oak, hickory, and sweetgum, with an understory of pineland threeawn, creeping bluestem, lopsided indiangrass, panicum, broomsedge, and scattered sawpalmetto.

This unit makes up about 34,200 acres, or about 7.2 percent of the land area of Pasco County. It is about 30 percent Tavares soils, 23 percent Sparr soils, 20 percent Adamsville soils, and 27 percent soils of minor extent.

Tavares soils are moderately well drained. Typically, the surface layer is very dark gray sand. Below this, to a depth of 86 inches or more, are layers of yellowish brown, light yellowish brown, very pale brown, and white sand.

Sparr soils are somewhat poorly drained. Typically, the surface layer is dark gray fine sand. Below this, to a depth of about 43 inches, is a subsurface layer of grayish brown, pale brown, and light yellowish brown fine sand. This layer is over a light yellowish brown sandy clay loam subsoil.

Adamsville soils are somewhat poorly drained. Typically, the surface layer is very dark gray fine sand. Below this, to a depth of 80 inches or more, are layers of grayish brown, pale brown, light gray, and white fine sand.

Minor in this unit are Arredondo, Blichton, Candler, Candler Variant, Electra Variant, Kanapaha, Kendrick, Millhopper, and Zolfo soils. The most common minor soil is Millhopper.

Most areas of this unit have been cleared and used for urban development, for cropland, and for improved pasture.

5. Arredondo-Sparr-Kendrick

Nearly level to sloping, well drained and somewhat poorly drained soils that are sandy to a depth of 20 to more than 40 inches and loamy below

This map unit is on uplands. It is found in two areas in the eastern part of the county. The largest area extends southeast from the Hernando County line about 3 miles west of U.S. Highway 301. It terminates at Zephyrhills. It varies from about 1 mile to 5 miles in width. A smaller area is south of St. Leo. Parts of the St. Leo community are in this map unit.

The landscape is one of nearly level to gently sloping ridges with a few narrow, sloping hillsides. Small sinks and wet depressions are scattered throughout most of the area. The natural vegetation is slash pine, longleaf pine, live oak, laurel oak, water oak, magnolia, hickory, dogwood, and an understory of native grasses and annual forbs.

This unit makes up about 34,080 acres, or about 7.2 percent of the land area of the county. It is about 40 percent Arredondo soils, 20 percent Sparr soils, 15 percent Kendrick soils, and 25 percent soils of minor extent.

Arredondo soils are well drained. Typically, the surface layer is dark gray and dark grayish brown fine sand. The subsurface layer extends to a depth of about 58 inches and consists of yellowish brown, light brownish yellow, and light yellowish brown fine sand. Below this, to a depth of 87 inches or more, is the subsoil. The upper part of the subsoil is brownish yellow fine sand, and the lower part consists of layers of yellowish brown and light yellowish brown sandy clay loam mottled with other colors.

Sparr soils are somewhat poorly drained. Typically, the surface layer is dark gray fine sand. Below this are subsurface layers of grayish brown, pale brown, and light yellowish brown fine sand that extend to a depth of about 43 inches. These layers are over light yellowish brown sandy clay loam.

Kendrick soils are well drained. The surface layer is dark grayish brown fine sand. Below this are subsurface layers of yellowish brown and mixed yellowish brown and light yellowish brown fine sand. The subsoil begins at a depth of about 28 inches. It consists of layers of sandy clay loam that are yellowish brown, brownish yellow, and a mixture of pale brown, reddish yellow, and pink.

Minor in this unit are Adamsville, Basinger, Blichton, Candler, Flemington Variant, Gainesville, Kanapaha, Lochloosa, Micanopy, Millhopper, Myakka, Narcoossee, Newnan, Tavares, Vero, and Wauchula soils. These minor soils generally occur as small delineations which are highly intermixed. Most of this unit has been cleared and is planted to citrus trees and improved pasture. Some areas are used for cultivated crops (fig. 2). The remaining uncleared areas provide cover and a fairly adequate supply of food for native wildlife.

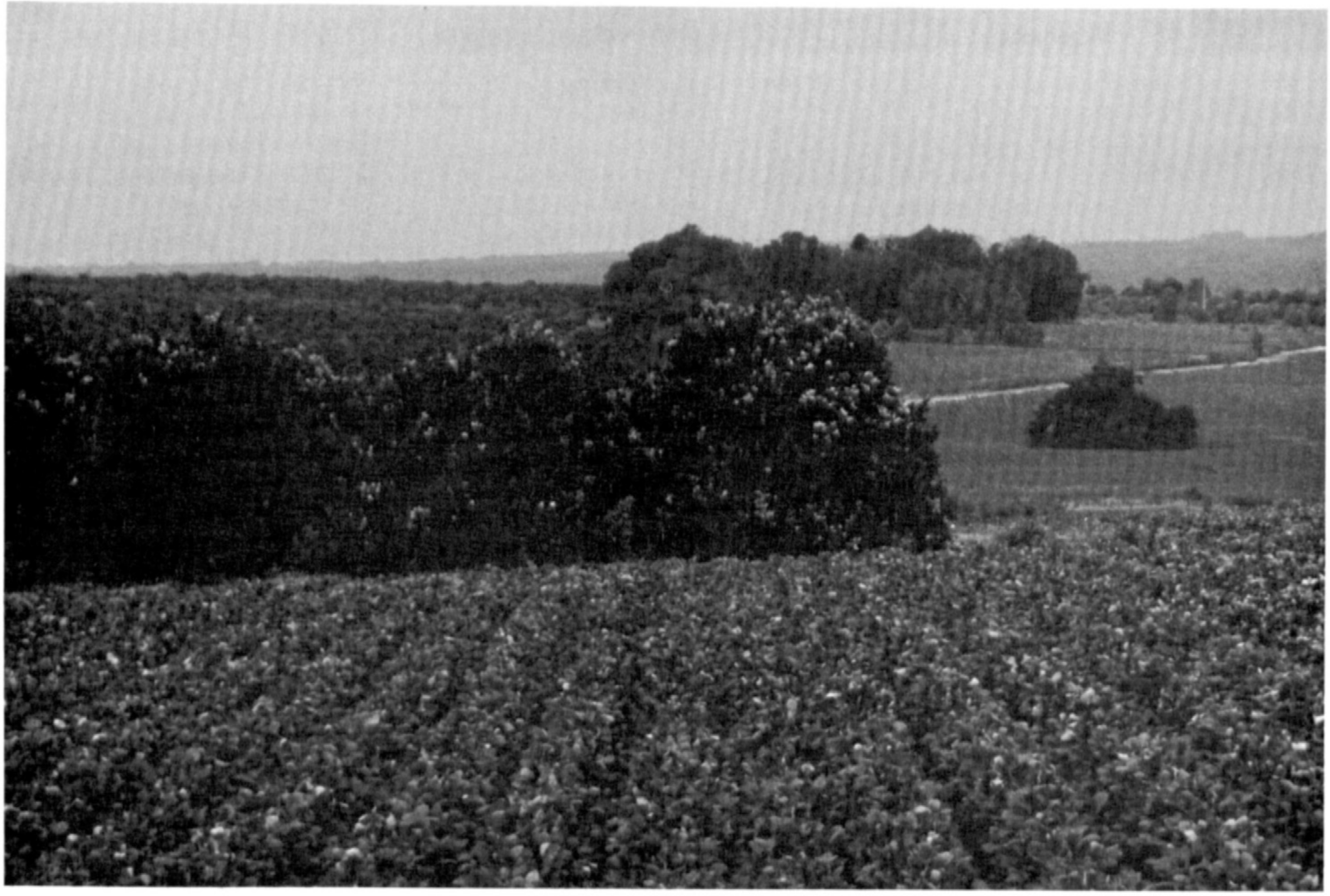


Figure 2.—These soybeans and citrus trees are growing in an area of the Arredondo-Sparr-Kendrick map unit.

6. Millhopper-Candler Variant

Nearly level to gently sloping, moderately well drained and well drained soils; some are sandy throughout with lamellae of loamy fine sand below a depth of 50 inches, and others are sandy to a depth of 40 to 80 inches and loamy below

This map unit is on uplands in the north-central part of the county. It is about 6 miles wide at the Hernando County line and extends southward about 2 miles into that county.

The landscape is dominantly one of nearly level ridges and gently sloping hillsides. A few grassy ponds and small sinkholes are in the unit. The native vegetation is scattered live oak, laurel oak, water oak, turkey oak, longleaf pine, and slash pine and an understory of lopsided indiangrass, pineland threeawn, chalky bluestem, creeping bluestem, paspalum, and other grasses and forbs.

This unit makes up about 7,780 acres, or about 1.6 percent of the land area of the county. It is about 70 percent Millhopper soils, 20 percent Candler Variant soils, and 10 percent soils of minor extent.

Millhopper soils are moderately well drained. Typically, the surface layer is dark gray and grayish brown fine sand. Below this, and extending to a depth of about 59 inches, are layers of very pale brown and light yellowish brown fine sand. The subsoil extends to a depth of 80 inches or more. The upper part of the subsoil is yellowish brown fine sandy loam, and the lower part is gray sandy clay loam.

Candler Variant soils are well drained. Typically, the surface layer is gray and dark grayish brown fine sand. Below this, and extending to a depth of about 72 inches, is yellowish brown and very pale brown fine sand. Below this, and extending to a depth of 80 inches or more, is white fine sand that contains thin lamellae of brown loamy fine sand.

Minor in this unit are Arredondo, Candler, Kendrick, Nobleton, Sparr, and Tavares soils.

About half the acreage has been cleared. Much of this area is undergoing urban development. The rest is mainly planted to grasses for improved pasture and for hay production. Several large egg farms are on this unit.

7. Nobleton-Blichton-Flemington Variant

Nearly level to sloping, somewhat poorly drained and poorly drained soils that are sandy to a depth of less than 40 inches and loamy or clayey below

Areas of this map unit are on the uplands in the north-central part of the county. The largest area extends south from the Hernando County line along Florida Highway 581. It is about 7 miles wide and terminates about 1.5 miles north of Florida Highway 52. Several smaller areas are around St. Leo and Pasco. Darby and St. Joseph are in areas of this map unit.

The landscape is mainly one of nearly level to sloping uplands. Sinkholes are in many places. The slopes vary from short, sharp-breaking, wet areas to long, seepy hillsides. They are wet because of hillside seepage. During wet seasons, many of the nearly level soils at the base of the slopes are subject to ponding because of the high rate of runoff on the slopes and the lack of drainage outlets. The natural vegetation on this unit is slash pine, longleaf pine, scattered laurel, live oak, water oak, sweetgum, hickory, dogwood, ironwood, and scattered redcedar. The understory is chiefly waxmyrtle, inkberry, American beautyberry, deertongue, scattered sawpalmetto, and various native grasses.

This unit makes up about 14,330 acres, or about 3 percent of the land area in the county. It is about 32 percent Nobleton soils, 26 percent Blichton soils, 13 percent Flemington Variant soils, and 29 percent soils of minor extent.

Nobleton soils are somewhat poorly drained. Typically, the surface layer is very dark grayish brown fine sand. Next is the subsurface layer of yellowish brown and pale brown fine sand. The sandy clay loam subsoil begins at a depth of about 29 inches and extends to a depth of 80 inches or more. The upper layer of the subsoil is pale brown; and the layers below that are, in sequence, mottled yellow, red, brown, gray, and light gray.

Blichton soils are poorly drained. Typically, the surface layer is very dark gray fine sand and the subsurface layers are grayish brown and gray fine sand. The subsoil of gray fine sandy loam and sandy clay loam begins at a depth of about 22 inches and extends to a depth of about 62 inches. Below the subsoil, and extending to a depth of 80 inches or more, is a mixture of light gray, strong brown, and yellowish brown fine sandy loam.

Flemington Variant soils are poorly drained. Typically, the surface layer is very dark gray fine sand. Below this, to a depth of about 46 inches, is the subsoil. It is grayish brown, light brownish gray, and light gray clay. The next layer is white and light gray clay that extends to a depth of 80 inches or more.

Minor in the acreage are Adamsville, Arredondo, Basinger, Kendrick, Kanapaha, Lochloosa, Micanopy, Paisley, Sparr, and Wauchula soils. Areas of the minor soils commonly are small and are highly intermixed with the areas of major soils of the unit.

Most of the acreage has been cleared and planted to improved pasture grasses. Some areas are used for cultivated crops and citrus trees. Some residential development has taken place. The remaining wooded areas provide excellent food and cover for wildlife.

soils of the flatwoods and depressions

The three map units in this group consist of poorly drained and very poorly drained, nearly level soils in flatwoods and depressions. Some are sandy throughout, some have a sandy layer 20 to 40 inches thick over loamy material, and others have a sandy layer 40 to 80 inches thick over loamy material. These soils occupy most of the south-central and central parts of the county, from Pinellas and Hillsborough Counties to slightly north of Florida Highway 52. Other smaller areas are east of the Withlacoochee River.

8. Smyrna-Sellers-Myakka

Nearly level, poorly drained and very poorly drained soils that are sandy throughout; some have a dark-colored subsoil within a depth of 30 inches, and some have a thick dark-colored surface layer

This map unit is in low flatwoods. Several very irregularly shaped areas of this unit are in the county. The largest covers much of the west-central and southwestern parts of the county. It extends from slightly west of Big Cypress Swamp on the east to the Pithlachascotee River, or a point slightly beyond, on the west. It extends north from the boundaries of Pinellas and Hillsborough Counties and terminates about 4 miles north of Florida Highway 52. Another area, about 1 to 2 miles wide, parallels the Withlacoochee River for about 10 miles in the eastern part of the county. Smaller areas are around Buddy Lake, southeast of St. Leo, and around Lake Conley, adjacent to U.S. Highway 19A. Gowers Corner and Seven Springs are in this unit.

The landscape is one of nearly level flatwoods interspersed with swampy depressional areas (fig. 3). Poorly developed drainageways connect many of the swampy areas. Rivers, creeks, and connected tributaries flow across soils of this unit. Small, scattered areas of low ridges and knolls are common in some parts of the unit. In others, there are many ponds and lakes ranging in size from about 1 to 300 acres.

The natural vegetation in the flatwoods is scattered longleaf pine and slash pine with an understory of sawpalmetto, running oak, gallberry, waxmyrtle, huckleberry, pineland threeawn, and scattered

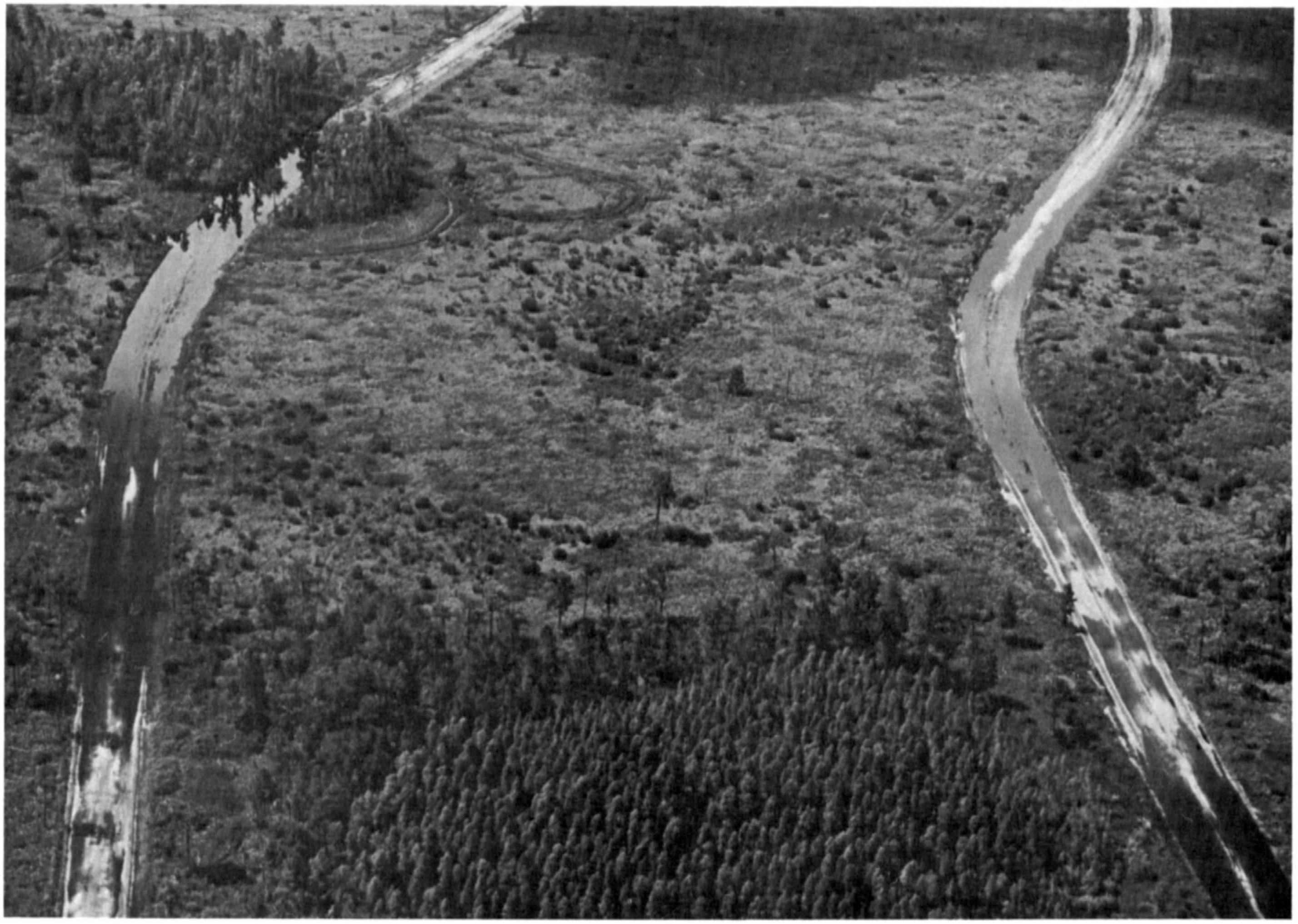


Figure 3.—Newly constructed roadways in an area of the Smyrna-Sellers-Myakka map unit. Heavy rainfall has caused ponding where the roadways pass through natural drainageways and depressions.

fetterbush. The natural vegetation on the swampy depressional parts is baldcypress, pond pine, bay, sweetgum, pickerelweed, and various water-tolerant grasses.

This unit makes up about 89,560 acres, or 18.9 percent of the land area of the county. It is about 30 percent Smyrna soils, 21 percent Sellers soils, 16 percent Myakka soils, and about 33 percent soils of minor extent.

Smyrna soils are poorly drained. Typically, the surface layer is black and very dark gray fine sand. Next is a subsurface layer of gray fine sand. The subsoil extends from a depth of about 10 inches to 35 inches and has layers of dark grayish brown, dark brown, dark reddish brown, and brown fine sand. Beneath the subsoil, to a depth of 80 inches or more, is light brownish gray fine sand.

Sellers soils are very poorly drained and are in depressional areas. Typically, they have a thin layer of muck on the surface. Below this, to a depth of about 24 inches, are black mucky loamy fine sand and black and very dark gray fine sand. Below this, and extending to a depth of 80 inches or more, are layers of dark brown, dark yellowish brown, and pale brown fine sand.

Myakka soils are poorly drained. Typically, the surface and subsurface layers are black, dark gray, gray, and light gray fine sand. The subsoil is between depths of 27 and 48 inches. It consists of layers of very dark gray, dark reddish brown, and dark brown fine sand. Below the subsoil, to a depth of 80 inches or more, is brown fine sand.

Minor in this unit are Adamsville, Basinger, Narcoossee, Newnan, Ona, Palmetto, Pomona, and Zephyr soils.

About half the acreage of this map unit remains in natural vegetation. Improved pasture has been planted in some areas. Some residential development has taken place. The wooded areas provide food and cover for a wide variety of wildlife, especially birds and small mammals.

9. Pomona-EauGallie-Sellers

Nearly level, poorly drained and very poorly drained soils; some have a subsoil that is dark colored and sandy within a depth of 30 inches and loamy below; some are sandy throughout and have a thick dark-colored surface layer

This map unit is in low flatwoods, mainly in the eastern half of the county. Interstate Highway 75 goes through the largest area. This area ranges from about 3 to 10 miles wide and extends from about Florida Highway 52 south to the Hillsborough County line. Another area surrounds parts of the Anclote River in the western part of the county. Several other scattered areas are adjacent to the Sumter, Polk, and Hillsborough county lines. Crystal Springs is in this unit.

The landscape is one of nearly level flatwoods interspersed with small, grassy, wet depressions and cypress ponds and swamps. Some of the depressions are connected by narrow drainageways. Surface streams and rivers are in most areas of the unit. The natural vegetation of the flatwoods is scattered longleaf pine and slash pine with an understory of sawpalmetto, waxmyrtle, inkberry, running oak, and various native grasses and forbs. The vegetation on the depressions and swamps ranges from dense stands of maidencane and St.-Johnswort to mixed stands of cypress, bay, and gum trees.

This unit makes up about 87,380 acres, or about 18.4 percent of the land area of the county. It is about 35 percent Pomona soils, 14 percent EauGallie soils, 13 percent Sellers soils, and about 38 percent soils of minor extent.

Pomona soils are poorly drained. Typically, the surface layer is black fine sand and the subsurface layer is gray and light gray fine sand. The upper part of the subsoil starts at a depth of about 22 inches and is grayish brown and brown fine sand. Below this, to a depth of 52 inches, the subsoil consists of layers of pale brown and dark brown fine sand. The lower part of the subsoil, to a depth of 60 inches, is loam. Below this, gray loamy fine sand extends to a depth of 80 inches or more.

EauGallie soils are poorly drained. Typically, the surface layer is black fine sand and the subsurface layer is gray, light gray, and white fine sand. The upper part of the subsoil begins at a depth of 22 inches and is very dark grayish brown, dark brown, and dark reddish brown fine sand. Below this is light brownish gray and grayish brown fine sand. The lower part of the subsoil is light gray and greenish gray sandy clay loam and extends from a depth of about 54 inches to 80 inches or more.

Sellers soils are very poorly drained and are in the depressional and swampy areas. Typically, a thin layer of muck is on the surface. Below this, to a depth of about 24 inches, are black mucky loamy fine sand and black and very dark gray fine sand. Below this, and extending to a depth of 80 inches or more, are layers of dark brown, dark yellowish brown, and pale brown fine sand.

Minor in this unit are Adamsville, Basinger, Myakka, Narcoossee, Ona, Palmetto, Samsula, Smyrna, Sparr, Tomoka, Vero, Wauchula, and Zephyr soils. Narcoossee soils are commonly on low ridges and knolls scattered across the landscape. The Samsula and Tomoka soils are in the lowest depressional areas, which retain surface water longest.

Most of the acreage of this map unit is still in natural vegetation. In some areas, water control systems have been installed and citrus trees, cultivated crops, and improved pasture grasses have been planted (fig. 4). Some residential development has taken place in a few areas. Wooded areas serve as excellent sources of food and cover for wildlife.

10. Basinger-Wauchula

Nearly level to gently sloping, poorly drained soils; some are sandy throughout; some have a subsoil that is dark colored and sandy within a depth of 30 inches and loamy below

This map unit is in flatwoods. Individual areas are mainly in the northeastern corner of the county, but one area is in the central part. The largest area is in the northeastern part of the county and contains most of the Withlacoochee State Forest. Two smaller areas are south of the large area, and another area is in the central part of the county around Big Fish Lake.

The landscape is one of nearly level flatwoods interspersed with cypress swamps and shallow ponds. Lakes and sinkholes are in some areas. The natural vegetation of the flatwoods is an open forest of longleaf pine and slash pine with an understory of sawpalmetto, gallberry, waxmyrtle, creeping bluestem, indiangrass, pineland threeawn, and various other grasses and forbs. In the swamps, the vegetation is bay, cypress, cabbage palm, and water oak. Maidencane, St.-Johnswort, waterlilies, pickerelweed, and other water-tolerant plants are in the shallow ponds.

This unit makes up about 15,330 acres, or about 3.2 percent of the land area in the county. It is about 55 percent Basinger soils, 35 percent Wauchula soils, and 10 percent soils of minor extent.

Basinger soils are poorly drained. They are in the flatwoods and in depressions. Typically, they have surface and subsurface layers of dark gray and light gray fine sand. Below the subsurface layer is dark brown and pale brown fine sand; and below this, to a depth of 80 inches or more, are layers of pale brown, light gray, and white fine sand.

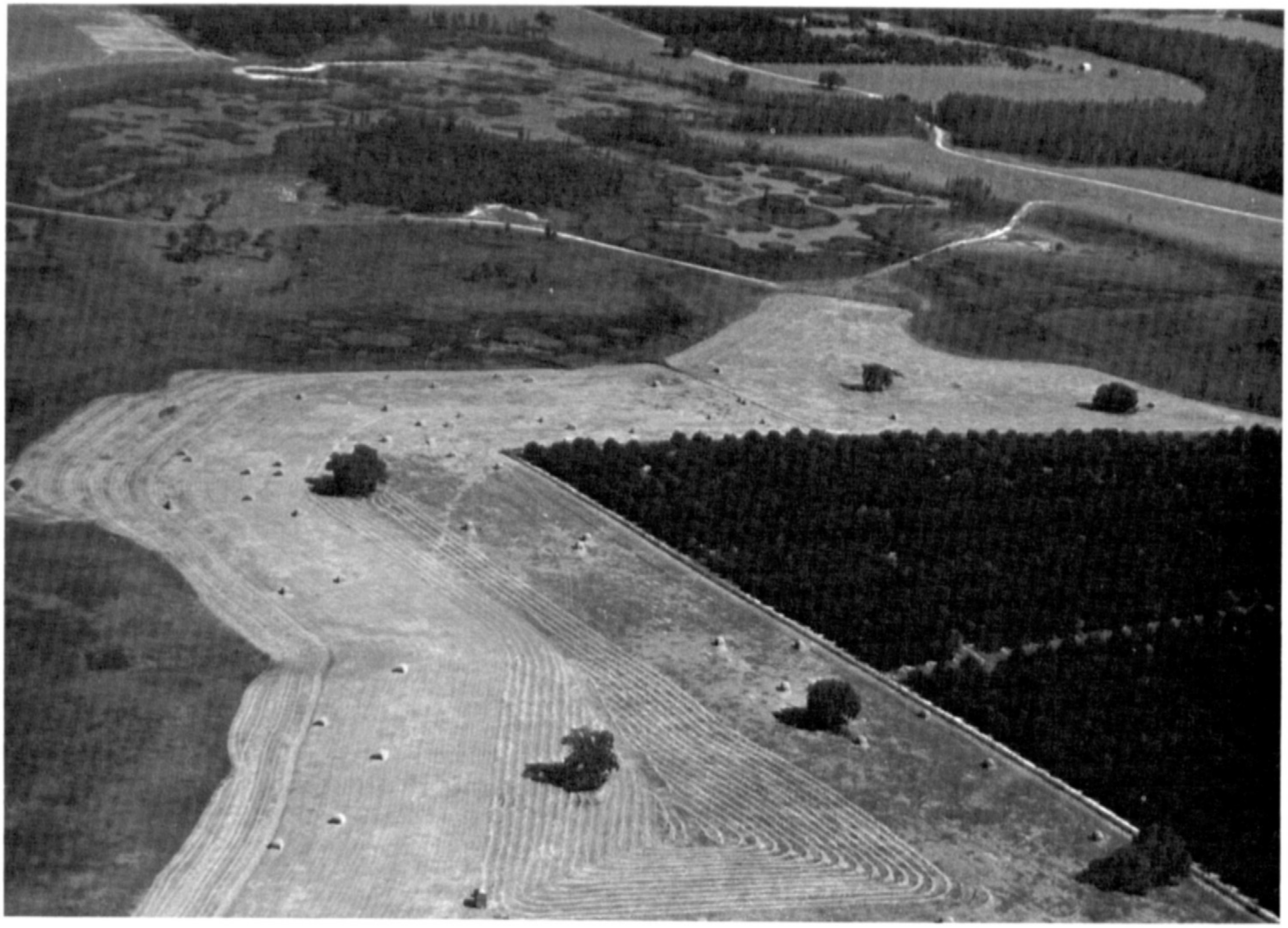


Figure 4.—An area of the Pomona-EauGallie-Sellers map unit. Hay is growing on the poorly drained Pomona and EauGallie soils. Citrus trees are growing on Sparr soils, minor soils in this unit. Note the poorly defined drainageways on the uncultivated parts.

Wauchula soils are poorly drained. Typically, the surface layer is black and dark grayish brown fine sand. The subsurface layers are gray and light brownish gray fine sand. The upper part of the subsoil is very dark gray and dark reddish brown fine sand. Next are layers of dark brown and pale brown fine sand. The lower part of the subsoil consists of light gray and light olive gray sandy clay loam and extends to a depth of 80 inches or more.

Minor in this unit are Adamsville, Delray, EauGallie, Myakka, Paisley, Pompano, Samsula, Sellers, Smyrna, Tavares, Tomoka, and Vero soils. Areas of these minor soils are small and are intermixed with areas of the major soils.

Most of the acreage of this unit remains in natural vegetation and provides food and cover for a great variety of wildlife. A few areas have been cleared and planted to improved pasture after installation of water control systems. A few areas of the Basinger soils are in pine plantations. Only a small acreage of this unit has been developed for residential use.

soils of the swamps, tidal marshes, and river flood plains

The four map units in this group consist of narrow to broad expanses of moderately well drained to very poorly drained, nearly level to gently sloping mineral and organic soils. These soils are on flood plains and in swamps and tidal marshes.

These soils are along the Gulf Coast, along the Anclote, Hillsborough, Pithlachascotee, and Withlacoochee Rivers, in Cypress and Wildcat swamps, and along Devils Creek. Other smaller areas occur along small streams and around lakes.

11. Chobee

Nearly level, very poorly drained soils that have a dark-colored loamy surface layer less than 20 inches thick over calcareous loamy materials

This map unit is on river and stream flood plains and in swamps. Individual areas are scattered dominantly in the southern and eastern parts of the county. Other areas are along Devils Creek and the Hillsborough and Withlacoochee Rivers in the eastern part of the county. This map unit also occurs along portions of the Anclote and Pithlachascotee Rivers in the western part and in small areas along the southern county line. Cypress Swamp is in this unit.

The landscape is one of flood plains and swamps that are subject to flooding. The vegetation is a dense growth of water oak, cypress, elm, ash, hickory, red maple, and sweetgum. The understory vegetation is a mixture of water-tolerant plants such as maidencane, sawgrass, swamp primrose, buttonbush, smartweed, sedge, and other similar plants.

This unit makes up about 34,600 acres, or about 7.3 percent of the land area of the county. It is about 64 percent Chobee soils and 36 percent soils of minor extent.

Chobee soils are very poorly drained. Typically, the surface layer is black and very dark gray fine sandy loam. Below this, to a depth of about 56 inches, are layers of calcareous gray and greenish gray sandy clay loam. Below these layers, to a depth of 80 inches or more, is a mixture of calcareous loamy materials.

The minor soils in this unit are Adamsville, EauGallie, Felda, Nobleton, Okeelanta, Pineda, Pomona, Sellers, Tavares, Terra Ceia, and Vero soils.

Only a few small areas of this unit have been cleared of natural vegetation. A small area near Crystal Springs has been developed for residential use. This unit provides excellent cover and abundant food for a wide variety of wildlife.

12. Aripeka-Okeelanta-Terra Ceia

Nearly level, somewhat poorly drained and very poorly drained soils; some have sandy and loamy material 20 to 30 inches thick over limestone, some have organic material 16 to 40 inches thick over sandy material, and others have organic material more than 52 inches thick

This map unit is made up of nearly level, freshwater hardwood and cypress swamps. It occurs as two areas in the western part of the county. The largest area parallels the coast and lies west of U.S. Highway 19. It is about 1 mile wide and extends from Hernando County southward to near Elfers. The other small area is adjacent to Pinellas County, and U.S. Highway 19 crosses it. The city of Port Richey is located in this unit. The landscape is one of hardwood and cypress swamps and slightly higher lying flatwoods. Most of the acreage, except for the Aripeka soils and some of the minor soils, is covered by water, except during extended dry periods or unless areas have been drained. The natural vegetation is a forest of sweetbay, sweetgum, cypress, various pines, cabbage palm, water oak, hickory, magnolia, cattail, sawgrass, royal fern, cinnamon fern, sawpalmetto, muscadine vine, inkberry, and various aquatic plants.

This unit makes up about 6,520 acres, or about 1.4 percent of the land area of the county. It is about 37 percent Aripeka soils, 19 percent Okeelanta soils, 9 percent Terra Ceia soils, and about 35 percent soils of minor extent.

Aripeka soils are somewhat poorly drained. Typically, the surface and subsurface layers are dark grayish brown and grayish brown fine sand. Below the subsurface layer are layers of yellowish brown fine sand, strong brown fine sandy loam, and sandy clay loam. Hard white and yellow limestone is at a depth of about 26 inches.

Okeelanta soils are very poorly drained. Typically, the upper 27 inches is black and dark reddish brown muck. Below the muck are layers of black and white fine sand.

Terra Ceia soils are very poorly drained. Typically, they are layers of black and reddish brown muck to a depth of 52 inches or more.

Minor in the unit are Adamsville, Immokalee, Myakka, and Vero soils.

Much of the acreage of this map unit has been cleared of natural vegetation and developed for urban use or mined as a source of limestone.

13. Anclote-Tavares-Pomello

Nearly level to gently sloping, very poorly drained and moderately well drained soils that are sandy throughout; some have a thick dark-colored surface layer, and some have a dark-colored subsoil within a depth of 50 inches

This map unit is on flood plains of rivers and streams and in swamps. Some of the unit is flooded annually, and most is flooded periodically in years of very high rainfall. This unit is in the eastern part of the county. The largest area is about a mile wide and extends along the Withlacoochee River, between the Withlacoochee State Forest on the north and Ranch Road on the south. A smaller area is east of this large area, in Wildcat Swamp.

The landscape consists of a flood plain and low ridges. The vegetation on the lowest parts that are flooded annually is cypress, sweetgum, swamp maple, bay, and an understory of scattered myrtle, Sagittaria species, spatterdock, rush, sedge, maidencane, and annual weeds. The low ridges have vegetation of scattered longleaf pine, slash pine, turkey oak, live oak, and an understory of sawpalmetto, pineland threeawn, and various annual and perennial grasses and forbs.

This unit makes up about 5,920 acres, or about 1.2

percent of the land area of the county. It is about 60 percent Anclote soils, 11 percent Tavares soils, 10 percent Pomello soils, and 19 percent soils of minor extent.

Anclote soils are very poorly drained. They are along the riverbed and in narrow flood channels and side streams. They are frequently flooded. Typically, the surface layer is black fine sand. Below the surface layer, to a depth of 80 inches or more, are layers of dark grayish brown fine sand, which has common black mottles, and gray fine sand.

Tavares soils are moderately well drained. They are on the low ridges. In places, these soils are occasionally flooded. Typically, the surface layer is very dark grayish brown fine sand. Below this are layers of pale brown and white fine sand to a depth of 80 inches or more.

Pomello soils are moderately well drained. They are on the low ridges. In places, these soils are occasionally flooded. Typically, the surface layer is black fine sand and the subsurface layer is white fine sand. The subsoil is dark reddish brown and yellowish brown fine sand. Below the subsoil, to a depth of 80 inches or more, is light brownish gray fine sand.

Minor in the unit are Adamsville, Basinger, Delray, Electra Variant, Myakka, Pompano, Pomona, Sellers, Tomoka, and Vero soils. The Basinger, Delray, Pompano, Sellers, and Tomoka soils are in close association with the Anclote soils. The other minor soils are on the low ridges.

This unit remains in natural vegetation. The larger trees, especially cypress, are being harvested for lumber. Most of the acreage is used for native pasture. Wildlife is varied and abundant, as this unit provides much food and good cover.

14. Homosassa-Lacoochee-Weekiwachee

Nearly level, very poorly drained organic and mineral soils and nearly level, poorly drained sandy soils that are underlain by soft and hard limestone; subject to frequent tidal flooding

This map unit is in saltwater marshes. Areas are in the western part of the county and extend the length of the county along the Gulf of Mexico. Most areas of this unit are less than a mile wide.

The landscape is one of tidal marsh. The natural vegetation is mostly salt-tolerant grasses and shrubs such as needlegrass rush, seashore saltgrass, marshhay cordgrass, big cordgrass, smooth cordgrass, and red mangrove. A few scattered cabbage palms and cedar are found in scattered, more elevated areas.

This unit makes up about 5,700 acres, or about 1.2 percent of the land area of the county. It is about 76 percent Homosassa soils, 10 percent Lacoochee soils, 4 percent Weekiwachee soils, and 10 percent soils of minor extent.

Homosassa soils are very poorly drained. Typically, the surface layer is very dark gray mucky fine sandy loam. It is underlain by grayish brown loamy fine sand. Soft and hard limestone are at a depth of about 28 inches.

Lacoochee soils are poorly drained. Typically, they have a surface layer of light gray fine sandy loam. This is over a layer of sand, which in turn overlies hard limestone at a depth ranging from about 7 to 20 inches.

Weekiwachee soils are very poorly drained. Typically, a thick black muck surface is underlain by hard and soft limestone at a depth of 20 to 40 inches.

Aripeka and Vero soils are the dominant minor soils.

Much of the acreage of this map unit is still in natural vegetation. Some areas near Hudson, Bayonet Point, and Port Richey have been developed for urban use, and some areas have been mined for limestone. The unit serves as a feeding ground for various waterfowl.

detailed soil map units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability and potential of a soil for specific uses. They also can be used to plan the management needed for those uses. More information on each map unit, or soil, is given under "Use and management of the soils."

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series.* Except for differences in texture of the surface layer or of the underlying material, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the underlying material. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases.* Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Basinger fine sand, depressional, is one of several phases in the Basinger series.

Some map units are made up of two or more major soils. These map units are called soil complexes, soil associations, or undifferentiated groups.

A *soil complex* consists of two or more soils in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. The Palmetto-Zephyr-Sellers complex is an example.

A *soil association* is made up of two or more geographically associated soils that are shown as one unit on the maps. Because of present or anticipated soil uses in the survey area, it was not considered practical or necessary to map the soils separately. The pattern and relative proportion of the soils are somewhat similar. The Okeelanta-Terra Ceia association is an example.

An *undifferentiated group* is made up of two or more soils that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils in a mapped area are not uniform. An area can be made up of only one of the major soils, or it can be made up of all of them. Chobee soils, frequently flooded, is an undifferentiated group in this survey area.

Not all of the map units in this county have been mapped with the same degree of detail. Broadly defined units, indicated by a superscript on the soil map legend, are apt to be larger and to vary more in composition than the rest of the map units in the survey. Composition of these broadly defined units has been controlled well enough, however, to be interpreted for the expected use of the soils.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description. Some small areas of strongly contrasting soils are identified by a special symbol on the soil maps.

This survey includes *miscellaneous areas.* Such areas have little or no soil material and support little or no vegetation. Pits is an example. Miscellaneous areas are shown on the soil maps. Some that are too small to be shown are identified by a special symbol on the soil maps.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

soil descriptions

1—Wauchula fine sand, 0 to 5 percent slopes. This nearly level to gently sloping, poorly drained soil is in broad, low areas in the flatwoods and on wet seepage hillsides in the uplands. Slopes are smooth to concave.

Typically, the surface layer is fine sand about 8 inches thick. It is black in the upper 5 inches and dark grayish brown in the lower 3 inches. The subsurface layer is fine sand about 11 inches thick. It is gray in the upper 4 inches and light brownish gray in the lower 7 inches. The upper part of the subsoil consists of very dark gray fine sand and, below that, dark reddish brown and dark brown fine sand. A layer of pale brown fine sand 3 inches thick separates the lower and upper parts of the subsoil. The lower part of the subsoil is light gray and light olive gray sandy clay loam.

Included with this soil in mapping are similar soils which have slopes of 5 to 7 percent. These soils commonly are around the edge of mapped areas of this Wauchula soil. Also included are small areas of Myakka, Pomona, and Wabasso soils. The included soils make up about 10 percent of the map unit.

In most years, under natural conditions, the water table is at a depth of less than 10 inches for about 1 to 4 months. It is at a depth of 10 to 40 inches for as long as 6 months, except during very dry periods, when it drops below a depth of 40 inches. The available water capacity is low in the surface layer and the layer separating the upper and lower parts of the subsoil, very low in the subsurface layer, and medium to high in the subsoil. Permeability is rapid in the surface layer, the subsurface layer, and the layer separating the upper and lower parts of the subsoil, and it is moderate to moderately rapid in the subsoil. Natural fertility is low.

The natural vegetation is longleaf pine, slash pine, and an understory of sawpalmetto, gallberry, waxmyrtle, creeping bluestem, indiangrass, little bluestem, Florida paspalum, pineland threeawn, panicum, deertongue, grassleaf goldaster, huckleberry, and running oak.

This soil is severely limited for cultivated crops because of wetness and poor soil quality. The number of crops that can be grown on this soil is limited unless very intensive management and water control practices are followed. If wetness is controlled, this soil can be made well suited to a number of vegetable crops. A water control system is needed to remove excess water in the wetter seasons and to provide water for subsurface irrigation in dry seasons. Crop residue and soil-improving crops should be plowed under. Seedbed preparation should include bedding of the rows to help lower the effective depth to the water table.

This soil is moderately suited to growing citrus trees after a carefully designed water control system that maintains the water table below a depth of 4 feet has been installed. Trees should be planted on beds to help lower the effective depth to the water table, and a vegetative cover should be maintained between the trees. Trees should not be planted in areas that are subject to freezing temperatures.

This soil is well suited to improved pasture grasses. Pangolagrass, improved bahiagrasses, and white clover grow well if well managed. Water control measures are needed to remove excess surface water after heavy rains. Fertilizer and lime are needed on a regular basis, and grazing should be controlled to prevent weakening of the plants.

This soil has moderately high potential for pine tree production. The main management concerns are equipment limitations during periods of heavy rainfall, seedling mortality, and plant competition. For best results, a simple water control system to remove excess surface water should be installed. Slash pine is the best species to plant.

This soil is in capability subclass IIIw and in the South Florida Flatwoods range site.

2—Pomona fine sand. This nearly level, poorly drained soil is in large areas on low ridges in the flatwoods. Slopes are smooth to concave and range from 0 to 2 percent.

Typically, the surface layer is black fine sand about 6 inches thick. The subsurface layer consists of gray fine sand 4 inches thick and, below that, light gray fine sand 9 inches thick. The upper part of the subsoil is fine sand. It is grayish brown in the first 4 inches, brown in the next 6 inches, and dark brown in the last 4 inches. A layer of pale brown fine sand 16 inches thick is between the upper and lower parts of the subsoil. The lower part of the subsoil is light olive gray fine sandy loam 8 inches thick. Below this, to a depth of about 80 inches or more, is gray loamy fine sand.

Included in mapping are small areas of Myakka, Smyrna, and Wauchula soils. The included soils make up about 10 percent of the map unit.

In most years, under natural conditions, the water table is within a depth of 10 inches for 1 to 3 months and is at a depth of 10 to 40 inches for 6 months or more. The available water capacity is moderate in the subsoil and low in the other layers. Natural fertility is low. Permeability is moderate in the sandy part of the subsoil, moderately slow in the loamy part of the subsoil, and rapid in the other layers.

A large part of the acreage of this soil is in natural vegetation of open forest consisting of longleaf pine, slash pine, and an understory of sawpalmetto, gallberry, waxmyrtle, creeping bluestem, chalky bluestem, indiangrass, and pineland threeawn.

This soil is very severely limited for cultivated crops because of wetness and poor soil quality. Only a limited number of crops can be grown on this soil unless very intensive management practices are followed. This soil can be made well suited to a number of vegetable crops. A water control system is needed to remove excess water in the wetter seasons and to provide water for subsurface irrigation in dry seasons. Crop residue and soil-improving crops should be plowed under. Seedbed preparation should include bedding of the rows.

This soil is suitable for growing citrus trees if a carefully designed water control system is installed to maintain the water table below a depth of 4 feet. Trees should be planted on beds to help lower the effective depth to the water table, and a vegetative cover should be maintained between the trees. Trees should not be planted in areas that are subject to freezing temperatures in winter.

The soil is well suited to improved pasture grasses (fig. 5). Pangolagrass, improved bahiagrasses, and white clover grow well if well managed. Water control measures are needed to remove excess surface water after heavy rains. Fertilizer and lime should be applied on a regular basis, and grazing should be controlled to prevent weakening of the plants.

This soil has moderately high potential for pine tree production. The main management problems are equipment limitations, seedling mortality, and plant competition. For best results, a simple water control system to remove excess surface water should be installed. Slash pine is the best species to plant.

This soil is in capability subclass IVw and in the South Florida Flatwoods range site.

3—Pineda fine sand. This poorly drained, nearly level soil is in the flatwoods. Individual areas are irregular in shape. Slopes range from 0 to 2 percent.

Typically, the surface layer is fine sand about 7 inches thick. It is very dark gray in the upper 4 inches and grayish brown in the lower 3 inches. The subsurface layer is gray fine sand about 14 inches thick. The upper part of the subsoil is yellowish brown fine sand to a depth of 31 inches and strong brown fine sand to a depth of about 36 inches. Below this is a layer of dark grayish brown fine sand 3 inches thick that separates the upper and lower parts of the subsoil. The lower part of the subsoil, which consists of grayish brown sandy clay loam, extends to a depth of 57 inches. Below this is a layer of greenish gray sandy clay loam 15 inches thick. Light gray sandy loam is below this layer.

Included with this soil in mapping are small areas of Felda and Vero soils. These soils make up less than 15 percent of the map unit. Also included with this unit are areas in the southeastern part of the county where the Bir horizon or parts of it have become hardened to a rocklike firmness.

The water table is within a depth of 10 inches for 1 to 6 months in most years. In lower lying areas, water rises above the surface for a brief period after exceptionally heavy rainfall. Permeability is rapid in the surface layer, the subsurface layer, and the sandy part of the subsoil. It is slow to very slow in the loamy lower part of the subsoil. The available water capacity is very low in all the

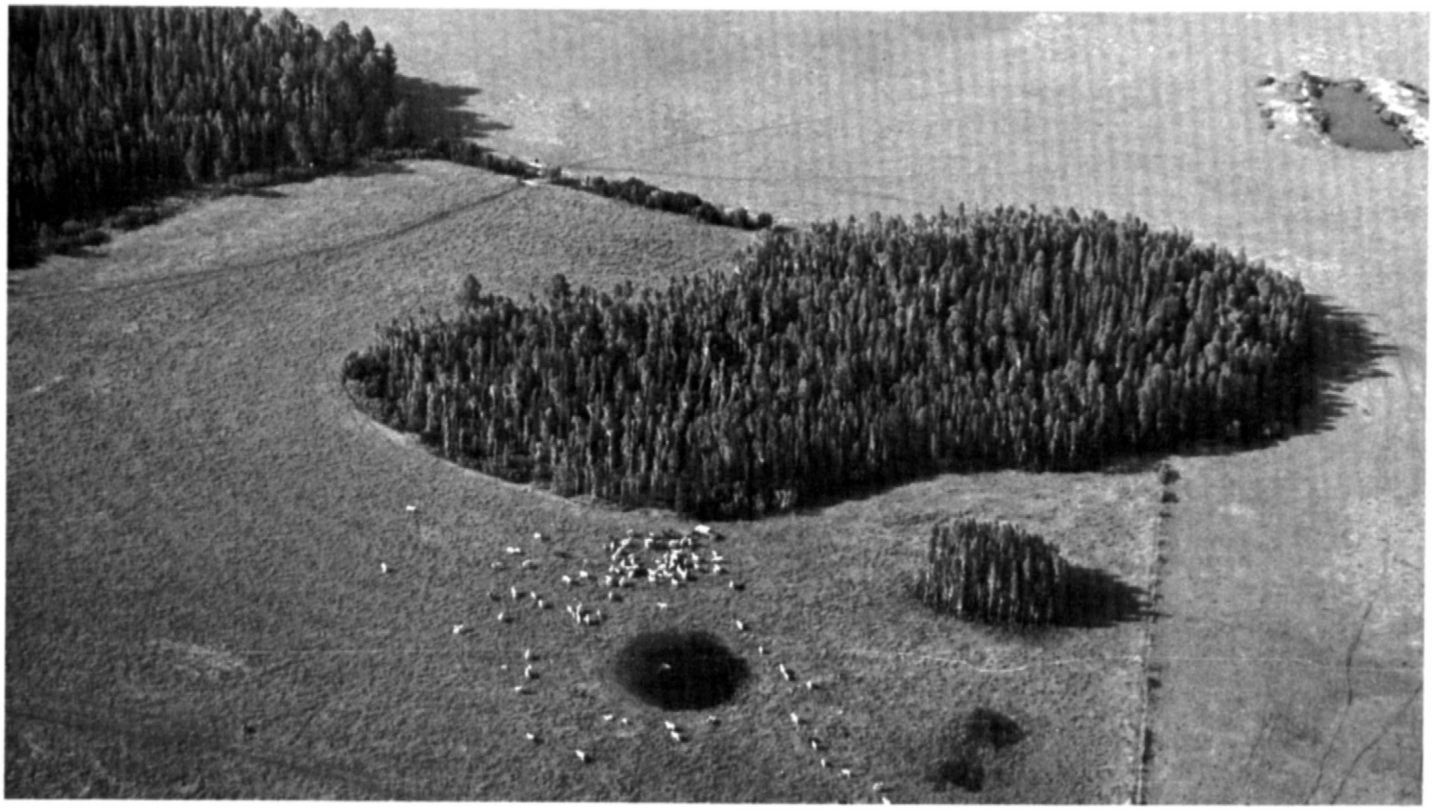


Figure 5.—Cattle in a large improved bahiagrass pasture on poorly drained Pomona fine sand. Areas of very poorly drained Sellers mucky loamy fine sand have not been cleared and are in cypress trees.

sandy layers and medium in the loamy part of the subsoil. Natural fertility and the organic matter content are low.

The natural vegetation on this soil is slash pine, cypress, waxmyrtle, cabbage palm, pineland threeawn, and sand cordgrass.

This soil is severely limited for cultivated crops because of wetness. If a complete water control system is installed, this soil is well suited to many fruit and vegetable crops. The water control system should remove excess water rapidly and provide a means of applying subsurface irrigation. Good soil management includes crop rotations that keep the soil in close-growing cover crops at least two-thirds of the time. The cover crops and all crop residue should be plowed under. Seedbed preparation should include bedding. Fertilizer should be supplied according to the needs of the crop.

If water is controlled, this soil has good suitability for citrus trees. A water control system that maintains good drainage to a depth of about 4 feet is needed. Bedding helps to provide good surface drainage. A cover of close-growing vegetation is needed between young trees to protect the soil from blowing. The trees require regular applications of fertilizer and occasional liming.

This soil has good suitability for pasture and hay crops. It is well suited to pangolagrass, bahiagrasses, and clovers. Under good management, excellent pastures of grass or a mixture of grass and clover can be grown. For highest yields, regular applications of fertilizers and control of grazing are needed.

This soil has moderately high potential for pine tree production. The major management concerns are mobility of equipment, seedling mortality, and plant competition. A simple water control system is needed to remove excess surface water before planting trees. Slash pine is the best species to plant.

This soil is in capability subclass IIIw and in the Slough range site.

4—Felda fine sand. This poorly drained, nearly level soil is on low-lying, broad areas in the flatwoods. Slopes range from 0 to 2 percent.

Typically, the surface layer is black fine sand about 4 inches thick. The subsurface layer is fine sand about 19 inches thick. It is light brownish gray in the upper 6 inches and light gray in the lower 13 inches. The subsoil extends to a depth of about 47 inches. It is gray sandy clay loam in the upper 4 inches and gray fine sandy loam with brownish yellow mottles in the next 8 inches. In the next 6 inches is gray loamy fine sand that has calcareous nodules and yellowish brown mottles. In the lower 6 inches of the subsoil is light gray loamy fine sand. Below this is white fine sand 33 inches thick.

Included with this soil in mapping are small areas of Pineda and Vero soils. The included soils make up less than 20 percent of the map unit.

Under natural conditions, the water table is within 10 inches of the surface for 2 to 6 months each year. The available water capacity is very low in the surface and subsurface layers and is medium in the subsoil. Natural fertility is low. Permeability is rapid in the surface and subsurface layers and is moderate to moderately rapid in the subsoil.

The natural vegetation is scattered longleaf pine, slash pine, and cabbage palms, and bluestem, maidencane, pineland threeawn, and many other native grasses, vines, and shrubs.

This soil is severely limited for cultivated crops because of wetness. If a complete water control system is installed, the soil is well suited to many fruit and vegetable crops. Such a water control system should remove excess water rapidly and provide subsurface irrigation. Good soil management includes crop rotations that keep close-growing cover crops on the soil at least two-thirds of the time and plowing under the cover crops and all crop residue. Seedbed preparation should include bedding. Fertilizers should be applied according to the needs of the crop.

If proper water control is used, this soil is good for citrus trees. Water control systems that maintain good drainage to a depth of about 4 feet are needed. Bedding the tree rows helps to provide good surface drainage. A cover of close-growing vegetation is needed between the trees to protect the soil from blowing when the trees are young. Fertilizer should be applied on a regular basis, and the soil should be limed occasionally.

This is a good soil for pasture and hay crops. It is well suited to pangolagrass, bahiagrasses, and clovers. Excellent pastures of grass or a mixture of grass and clover can be grown under good management. Fertilizer should be applied on a regular basis, and grazing should be controlled for highest yields.

This soil has moderately high potential for pine tree production. The major management concerns are mobility of equipment during periods of high rainfall and plant competition. Seedling mortality is commonly high. A simple water control system should be installed to remove excess surface water. Slash pine is the best species to plant.

This soil is in capability subclass IIIw and in the Slough range site.

5—Myakka fine sand. This nearly level, poorly drained soil is on broad areas in the flatwoods. Slopes are smooth to concave and range from 0 to 2 percent.

Typically, the surface layer is fine sand about 6 inches thick. It is black in the upper 3 inches and dark gray in the lower 3 inches. The subsurface layer is fine sand about 21 inches thick. It is gray in the upper 4 inches and light gray in the lower 17 inches. The subsoil is fine sand about 21 inches thick. It is weakly cemented in a few places. It is very dark gray in the upper 3 inches, dark reddish brown in the next 8 inches, and dark brown in the lower 10 inches. The substratum is brown fine sand to a depth of 80 inches or more.

Included with this soil in mapping are small areas of Adamsville, Narcoossee, Ona, Pomona, and Symrna soils. In some areas in the western part of the county, limestone boulders 2 to 6 feet in diameter are at a depth of about 60 to 100 inches. The included soils make up about 10 percent of the map unit.

The water table is at a depth of less than 10 inches for 1 to 4 months in most years and recedes to a depth of more than 40 inches during very dry seasons. The available water capacity is medium in the subsoil and very low in the other layers. Permeability is rapid in the surface and subsurface layers and the substratum and is moderate to moderately rapid in the subsoil. Internal drainage and runoff are slow. Natural fertility is low.

The natural vegetation is longleaf pine, slash pine, and an undergrowth of sawpalmetto, running oak, gallberry, waxmyrtle, huckleberry, pineland threeawn, and scattered fetterbushes. Most areas are in native forest.

This soil is very severely limited for cultivated crops because of wetness and sandy texture. It is suited to only a few crops unless very intensive management practices are followed. This soil can be made suitable for a number of vegetable crops. A water control system is needed to remove excess water in the wetter seasons and to provide water for subsurface irrigation in dry seasons. Crop residue and soil-improving crops should be plowed under. Seedbed preparation should include bedding of the rows.

The soil is suitable for citrus trees only if a carefully designed water control system that maintains the water table below 4 feet is installed (fig. 6). Trees should be planted on beds to help lower the effective depth to the water table, and a vegetative cover should be maintained between the trees. Citrus trees should not be planted in areas that are subject to freezing temperatures in winter.

This soil is well suited to improved pasture grasses. Pangolagrass, improved bahiagrass, and white clover grow well if the pasture is well managed. Water control measures are needed to remove excess surface water after heavy rains. Regular applications of fertilizer and

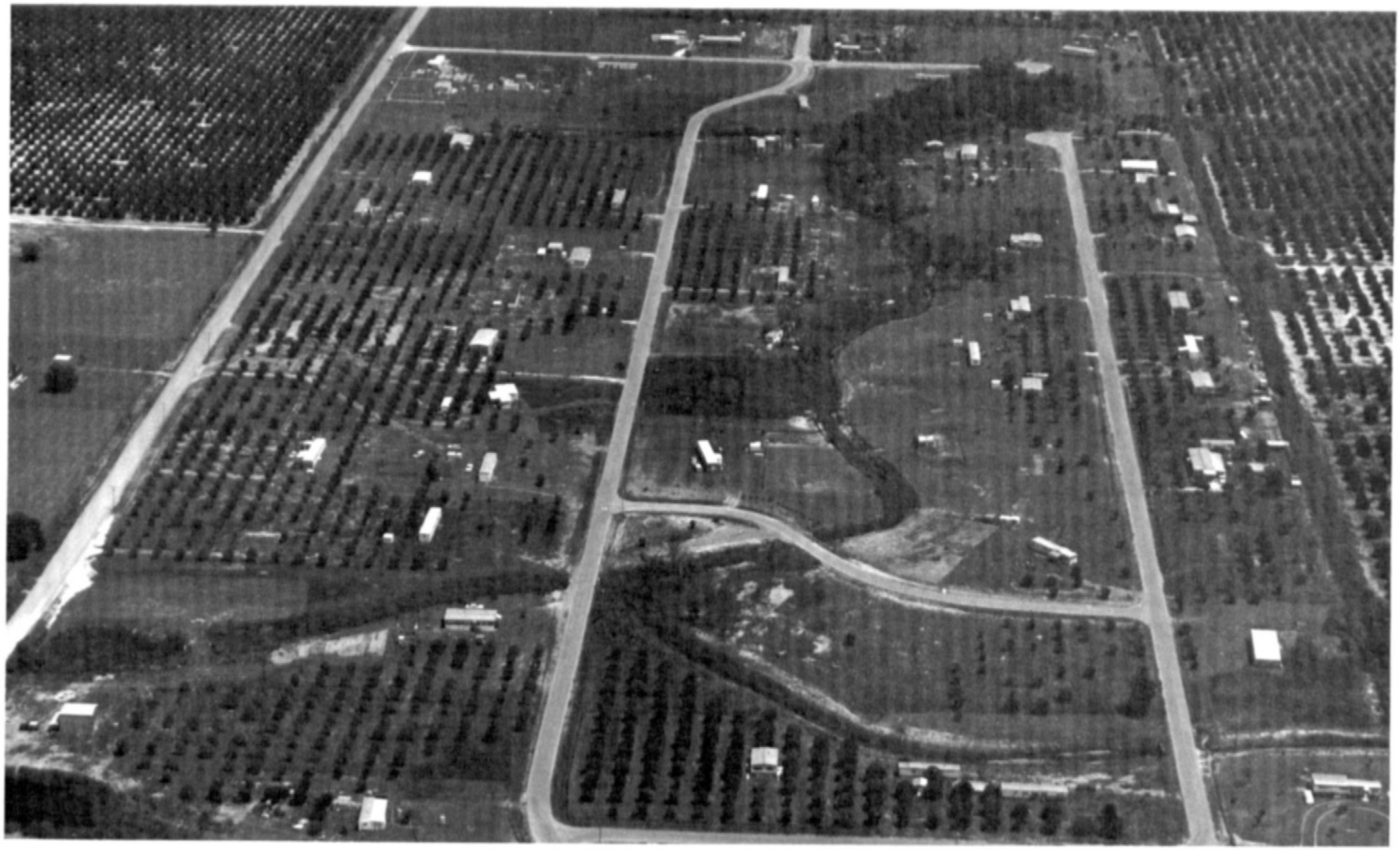


Figure 6.—This citrus grove on Myakka fine sand is being developed for urban use. An extensive drainage system was established on this poorly drained soil for the citrus trees.

lime are needed, and grazing should be controlled to prevent weakening of the plants.

This soil has moderate potential for pine tree production. The main management concerns are equipment limitations during periods of heavy rainfall, seedling mortality, and plant competition. For best results, a water control system should be installed to remove excess surface water. Slash pine is the best species to plant.

This soil is in capability subclass IVw and in the South Florida Flatwoods range site.

6—Tavares sand, 0 to 5 percent slopes. This nearly level to gently sloping, moderately well drained soil is on low ridges and knolls throughout the county. Areas are irregular in shape.

The soil is sand to a depth of 80 inches or more. Typically, the surface layer is very dark gray sand about 3 inches thick. Below this, layers of yellowish brown and light yellowish brown sand extend to a depth of 56 inches. Below this is a layer of very pale brown sand 20 inches thick, and below this, white sand extends to a depth of 80 inches or more.

Included with this soil in mapping are small areas of Adamsville, Astatula, and Candler soils. Also included are small areas of Millhopper and Sparr soils and, along rivers, a few areas of soils that occasionally are flooded. The included soils make up about 10 percent of the map unit.

In most years, under natural conditions, the water table is at a depth of 40 to 60 inches for 6 to 12 months and below 60 inches during very dry periods. The available water capacity is very low. Permeability is very rapid. Natural fertility is low.

The natural vegetation is slash pine, longleaf pine, blackjack oak, turkey oak, and post oak and an understory of pineland threeawn, creeping bluestem, lopsided indiangrass, hairy panicum, low panicum, purple lovegrass, and broomsedge bluestem.

This soil is severely limited for most cultivated crops. Droughtiness and rapid leaching of plant nutrients limit the variety and potential yields of crops that can be grown on this soil. Soil management should include planting row crops on the contour in alternation with strips of close-growing crops. A crop rotation system that keeps close-growing crops on the land at least two-thirds of the time should be used. All crops should be fertilized and limed. Soil-improving cover crops and all crop residue should be left on the ground or plowed under. Irrigation of high-value crops is generally feasible where irrigation water is readily available.

This soil is well suited to citrus trees in places that are relatively free from freezing temperatures. A ground cover of close-growing vegetation should be maintained between the trees. Citrus can normally be grown without irrigation, but irrigation maintains optimum yields in places where irrigation water is readily available. Fertilizer and lime are needed.

The soil is well suited to pasture grasses. Pangolagrass, Coastal bermudagrass, and bahiagrasses grow well on this soil. They produce good yields if they are fertilized and limed. Control of grazing is needed for maximum yields.

This soil has moderately high potential for pine tree production. Equipment limitations, seedling mortality, and plant competition are the main management concerns. Slash pine is the best species to plant.

This soil is in capability subclass IIIs and in the Longleaf Pine-Turkey Oak Hills range site.

7—Sparr fine sand, 0 to 5 percent slopes. This nearly level to gently sloping, somewhat poorly drained soil is on seasonally wet uplands. Slopes are smooth to concave. Areas are irregular in shape.

Typically, the surface layer is dark gray fine sand about 6 inches thick. The subsurface layer is about 37 inches thick. It is grayish brown fine sand in the upper 5 inches, pale brown fine sand in the next 24 inches, and light yellowish brown fine sand in the lower 8 inches. The subsoil is light yellowish brown sandy clay loam to a depth of about 80 inches.

Included with this soil in mapping are similar soils that have over 5 percent plinthite in the subsoil. Also included are small areas of Arredondo, Millhopper, Nobleton, and Tavares soils and a few areas along rivers that are occasionally flooded. The included soils make up about 15 percent of the map unit.

This Sparr soil has a water table, commonly perched above the subsoil, at a depth of 20 to 40 inches for 1 to 4 months during most years. The available water capacity is low in the surface and subsurface layers and is medium to high in the subsoil. Natural fertility is low. Permeability is rapid in the surface and subsurface layers and is moderate in the subsoil.

The native vegetation is oak, hickory, magnolia, sweetgum, slash pine, longleaf pine, and loblolly pine. Some areas have an understory of gallberry, waxmyrtle, scattered sawpalmetto, and pineland threeawn.

This soil is severely limited for cultivated crops. Droughtiness and rapid leaching of plant nutrients are the principal limitations for row crops. Special soil-improving measures are necessary when this soil is cultivated. Cultivated row crops should be planted on the contour in strips alternating with strips of close-growing crops. Crop rotations should keep the soil under close-growing vegetation at least two-thirds of the time. Soil-improving cover crops and all crop residue should be left on the soil or plowed under. All crops need frequent fertilizing and liming. Irrigation of a few high-value crops is feasible where irrigation water is readily available.

The soil is well suited to citrus trees in places that are relatively free from freezing temperatures. A ground cover of close-growing plants is needed between the trees to protect the soil from blowing. Good yields of oranges and grapefruit can generally be obtained without irrigation. Where water for irrigation is readily available, however, increased yields make irrigation feasible.

The soil is well suited to pasture and hay crops. Deep rooting plants such as Coastal bermudagrass and bahiagrasses normally grow well if the soil is well fertilized and limed (fig. 7). Production is occasionally restricted by extended drought. Grazing should be controlled for highest yields.

This soil has moderately high potential for pine tree production. The main management concerns are equipment limitations, seedling mortality, and plant competition. Slash pine is the best species to plant.

This soil is in capability subclass IIIs. It has not been assigned to a range site.

8—Sellers mucky loamy fine sand. This nearly level, very poorly drained soil is in depressions. Slopes are generally concave and less than 2 percent. Areas are circular to oblong.

Typically, a layer of black muck about 2 inches thick is on the surface. The surface mineral layer is black mucky loamy fine sand in the upper 9 inches, black fine sand in the next 11 inches, and very dark gray fine sand in the lower 4 inches. Below this, to a depth of 80 inches or more, is fine sand that is dark brown in the upper 10 inches, dark yellowish brown in the next 14 inches, and pale brown below.

Included with this soil in mapping are similar soils that differ by having organic stained layers, by being less acid, or by having a loamy subsoil within a depth of 80 inches. Also included are soils which are similar but have a thinner, dark-colored surface layer.

In most years, under natural conditions, the soil is ponded during wet seasons for 3 to 6 months and the water table is within a depth of about 10 inches for 6 to 12 months. The available water capacity is high in the organic surface layer, medium in the dark-colored layers to a depth of about 24 inches, and low below this depth. Permeability is rapid throughout; however, internal drainage is slow, impeded by a shallow water table. Both

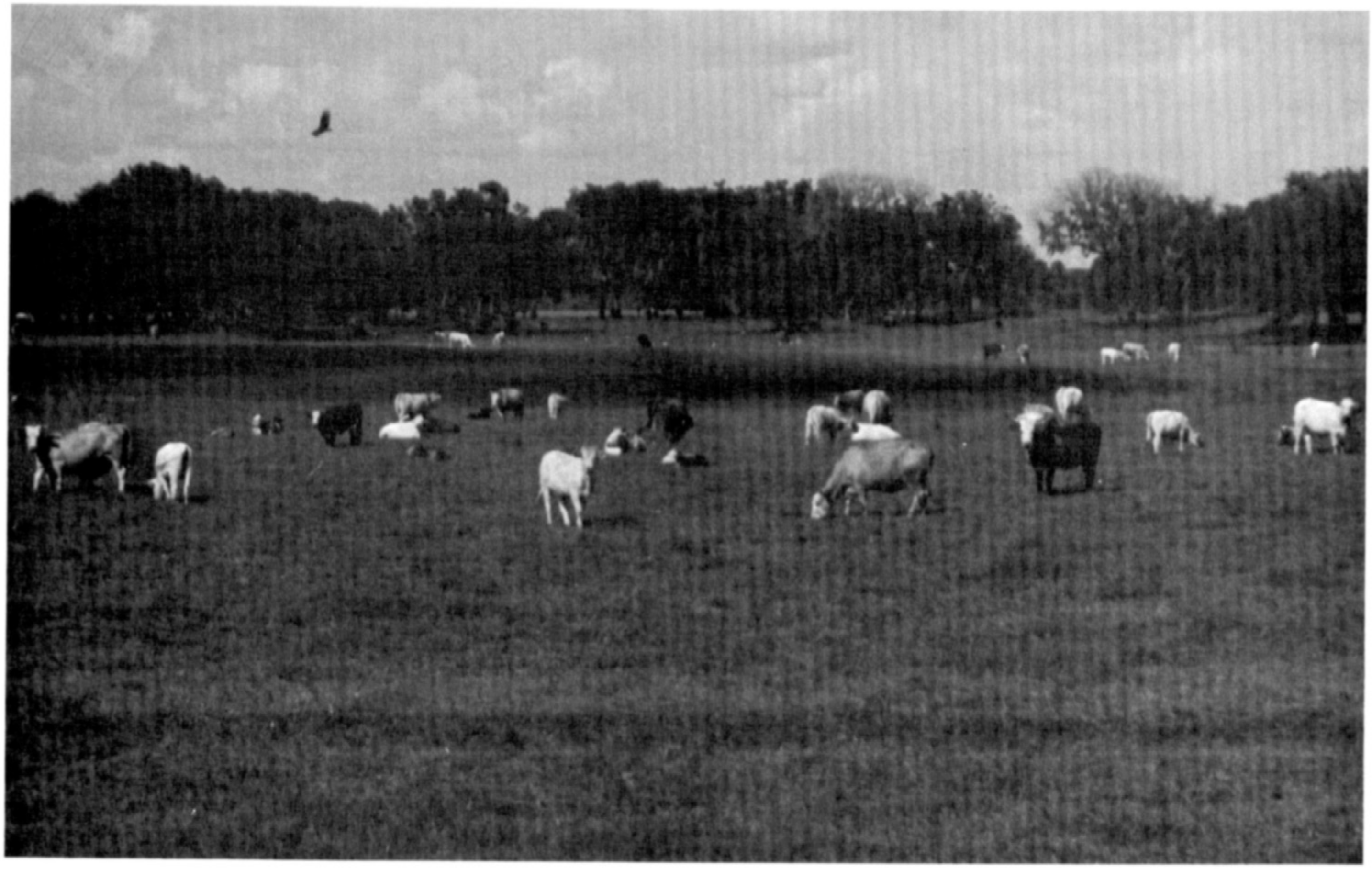


Figure 7.—Cattle grazing on improved bahiagrass pasture that is on Sparr fine sand, 0 to 5 percent slopes. This soil surrounds a depressional area of poorly drained Palmetto-Zephyr-Sellers complex.

natural fertility and the organic matter content are high to a depth of about 27 inches and are low below this depth.

The natural vegetation is baldcypress, pond pine, bay, sweetgum, pickerelweed, and various perennial grasses.

Under natural conditions, this soil is not suited to crops and citrus trees. Plant growth is severely restricted by the water table, which is above the surface much of the year. Establishing an adequate water control system is difficult because in most places suitable outlets are not available. However, if a water control system can be installed, this soil has moderate suitability for the production of high-quality pasture.

This soil has high potential for pine tree production, but only if a good water control system is installed to remove excess surface water. Equipment limitations and seedling mortality are the main management concerns. Slash pine is the best species to plant.

This soil is in capability subclass VIIw and in the Fresh Marsh range site.

9—Ona fine sand. This nearly level, poorly drained soil is in broad areas in the flatwoods. Areas are irregular in shape. Slopes are smooth to concave and range from 0 to 2 percent.

Typically, the surface layer is black fine sand to a depth of 5 inches and very dark gray fine sand to a depth of 7 inches. The subsoil is fine sand about 16 inches thick. It is dark brown in the upper 6 inches, dark reddish brown in the next 5 inches, and brown in the lower 5 inches. The substratum to a depth of about 45 inches is pale brown fine sand; and below that, to a depth of 80 inches or more, it is light gray fine sand.

Included with this soil in mapping are small areas of Smyrna and Pomona soils. The included soils make up about 10 percent of the map unit.

The water table is at a depth of 10 to 40 inches for a period of 4 to 6 months during most years. It rises to a depth of less than 10 inches for a period of 1 to 2 months and may recede to a depth of more than 40 inches during very dry seasons. The available water capacity is medium in the surface layer and subsoil and is very low to low in the substratum. Permeability is moderate in the subsoil and rapid in the other layers. Internal drainage and runoff are slow. Natural fertility is low.

The natural vegetation is longleaf pine and slash pine and an undergrowth of widely spaced sawpalmetto, running oak, gallberry, waxmyrtle, huckleberry, pineland threeawn, and scattered fetterbushes. Most areas are in improved pasture or in native forest.

This soil is very severely limited for cultivated crops because of wetness and poor soil quality. Only a limited number of crops can be grown on this soil unless very intensive management practices are followed. This soil can be made well suited to a number of vegetable crops by installing a water control system to remove excess water in the wetter seasons and to provide water for subsurface irrigation in dry seasons. Crop residue and soil-improving crops should be plowed under, and seedbed preparation should include bedding of the rows.

This soil has moderate suitability for citrus tree production, but only after a carefully designed water control system has been installed to maintain the water table below 4 feet. Trees should be planted on beds to help increase the effective depth to the water table, and plant cover should be maintained between the trees. Trees should not be planted in areas that are subject to freezing in winter.

This soil is well suited to use as pasture. Pangolagrass, bahiagrasses, and clovers grow well if they are well managed. Management needs include installation of a simple water control system to remove excess surface water and regular use of fertilizers and lime. Grazing should be controlled for highest yields.

This soil has moderately high potential for pine tree production. The main management concerns are equipment limitations during periods of heavy rainfall, seedling mortality, and plant competition. For best results, a water control system to remove excess surface water should be installed. Slash pine is the best species to plant.

This soil is in capability subclass IIIw and in the South Florida Flatwoods range site.

10—Vero fine sand. This nearly level, poorly drained soil is in broad areas in the flatwoods. Individual areas are irregular in shape. Slopes are less than 2 percent.

Typically, the surface layer is black fine sand about 6 inches thick. The subsurface layer is fine sand about 17 inches thick. It is gray in the upper 5 inches and light brownish gray in the lower 12 inches. The subsoil to a depth of about 30 inches is fine sand that is very dark grayish brown in the upper 4 inches and dark reddish brown below. The rest of the subsoil is sandy clay loam and extends to a depth of about 51 inches. It is light brownish gray in the upper 14 inches and light gray in the lower 7 inches. Light gray fine sandy loam is between depths of 51 and 66 inches. Below that, to a depth of 80 inches or more, is light gray sandy clay loam.

Included with this soil in mapping are small areas of EauGallie and Paisley soils. In mapped areas west of U.S. Highway 19, Aripeka soils are common. The included soils make up about 20 percent of the map unit.

In most years, the water table is at a depth of 10 to 40 inches for more than 6 months if this soil is in an unaltered natural state. It is at a depth of less than 10 inches for 1 to 4 months in wet seasons and at a depth of more than 40 inches during very dry seasons. The available water capacity is low in the surface and subsurface layers and is medium in the subsoil. Permeability is rapid in the surface and subsurface layers and is slow to very slow in the subsoil. Natural fertility is low.

The natural vegetation on this soil is longleaf pine, slash pine, cabbage palm, a few scattered live oak, and an understory of sawpalmetto, laurel, waxmyrtle, and pineland threeawn.

This soil is severely limited for cultivated crops because of wetness and the sandy surface layer. Only a limited number of crops can be grown on this soil unless very intensive management practices are followed. This soil can be made well suited to a number of vegetable crops by installing a water control system to remove excess water in the wet seasons and to provide water for subsurface irrigation in dry seasons. Crop residue and soil-improving crops should be plowed under. Seedbed preparation should include bedding of the rows.

This soil has moderate suitability for growing citrus trees, but only if a carefully designed water control system that maintains the water table below a depth of 4 feet is installed. Trees should be planted on beds, and a plant cover should be maintained between the trees. Trees should not be planted in areas that are subject to freezing temperatures.

This soil is well suited to improved pasture grasses. Pangolagrass, improved bahiagrasses, and white clovers grow well if well managed. Water control measures are needed to remove excess surface water after heavy rains. Regular applications of fertilizer and lime are needed, and grazing should be controlled to prevent weakening of the plants.

This soil has moderately high potential for pine tree production. The main management concerns are equipment limitations during periods of heavy rainfall, seedling mortality, and plant competition. For best results, a simple water control system should be installed to remove excess surface water. Slash pine is the best species to plant.

This soil is in capability subclass IIIw and in the South Florida Flatwoods range site.

11—Adamsville fine sand. This nearly level, somewhat poorly drained soil is on low broad flats that are less than 2 feet higher in elevation than the adjacent sloughs. Individual areas are irregular in shape and range from 5 to 200 acres. Slopes are less than 2 percent.

Typically, the surface layer is very dark gray fine sand about 3 inches thick. The subsurface layer is grayish brown fine sand 5 inches thick. The underlying material to a depth of 80 inches or more is fine sand. It is very pale brown to a depth of about 23 inches, light gray to a depth of about 57 inches, and white below 57 inches.

Included with this soil in mapping are small areas of Narcoossee, Tavares, and Zolfo soils. Also included, along rivers, are a few areas of soils that occasionally are flooded. The included soils generally make up less than 10 percent of the map unit.

In most years, under natural conditions, the water table is at a depth of 20 to 40 inches for 2 to 6 months; but it may rise to within 20 inches of the surface for less than 2 weeks during very wet seasons. It recedes to a depth of more than 40 inches during dry periods. In this soil, available water capacity is low to very low. Natural fertility is low. Permeability is rapid.

A large part of this soil is in natural vegetation of slash pine, longleaf pine, laurel, bluejack, turkey oak, water oak, and an understory of sawpalmetto and pineland threeawn.

This soil is severely limited for cultivated crops because of periodic wetness, which restricts the rooting zone. The number of crops that can be grown on this soil is very limited unless intensive measures are used to control water. If such measures are used, this soil is well suited to many kinds of flowers. A water control system can be designed to remove excess water in wet seasons and provide irrigation in dry seasons. Bedding can be used to lower the effective depth to the water table. Other good management practices include a crop rotation system that keeps a close-growing crop on the soil at least two-thirds of the time, the use of soil-improving crops, and plowing under crop residue. Fertilizer and lime should be added according to the needs of the crops.

This soil is not suited to citrus trees unless wetness is controlled. If a well designed water control system is installed, the soil is moderately suited to citrus trees. The water control system should be able to remove excess water from the soil rapidly to a depth of about 4 feet. Trees can be planted on beds to increase the effective depth to the water table. Maintaining a cover of close-growing vegetation between the trees prevents soil blowing in dry weather and erosion of the soil by water during heavy rains. Fertilizer and lime should be applied on a regular basis. For highest yields, irrigation is needed in seasons of low rainfall.

This soil is moderately suited to use as pasture. Pangolagrass and bahiagrass are well suited. These grasses require simple water control systems to remove excess surface water in times of high rainfall. They also require fertilizer and lime on a regular basis. Grazing should be carefully controlled for highest yields.

This soil has moderately high potential for pine tree production. Equipment limitations, seedling mortality, and plant competition are the major management concerns. Slash pine is the most productive tree to plant.

This soil is in capability subclass IIIw and in the South Florida Flatwoods range site.

12—Astatula fine sand, 0 to 5 percent slopes. This nearly level to gently sloping, excessively drained soil is mainly in the sandhills. Areas are irregular in shape. Slopes are smooth to concave.

Typically, the surface layer is dark grayish brown fine sand about 6 inches thick. Below this, to a depth of 29 inches, is a layer of brown fine sand; and below this, very pale brown fine sand extends to a depth of 80 inches or more.

Included with this soil in mapping are small areas of Candler, Paola, and Tavares soils. The included soils make up about 10 percent of the map unit.

The water table is below a depth of 72 inches. Both the available water capacity and the natural fertility of the soil are very low. Permeability is very rapid throughout the soil.

Few areas of this soil have been cleared. The native vegetation is sand pine, longleaf pine, scrub live oak, bluejack oak, turkey oak, and an understory of rosemary, pineland threeawn, bluestem, paspalum, sawpalmetto, and cacti.

This soil is not suitable for cultivated crops because of droughtiness and rapid leaching of plant nutrients.

This soil is poorly suited to citrus. Yields are only fair, even under a high level of management.

The suitability of this soil for improved pasture grasses is moderate under good management practices. Growth of grasses such as pangolagrass and bahiagrass is only fair. This soil is not suited to clover.

This soil has low potential for pine tree production. Seedling mortality and equipment use limitations are the major management problems. Sand pine is the best species to plant.

This soil is in capability subclass VIs and in the Sand Pine Hills range site.

13—Candler fine sand, 0 to 5 percent slopes. This soil is nearly level to gently sloping and excessively drained. Individual areas are irregular in shape and range from about 40 to several hundred acres in size.

Typically, the surface layer consists of grayish brown fine sand 3 inches thick and, below that, brown fine sand 6 inches thick. The subsurface layer to a depth of about 50 inches is fine sand. It is brownish yellow in the upper 23 inches and yellow below. Below a depth of 50 inches is a mixture of brownish yellow and yellow fine sand, which contains lenses or lamellae of strong brown loamy fine sand that are about 1/16 to 1/4 inch thick and 2 to 6 inches long.

Included with this soil in mapping are small areas of Arredondo, Astatula, Lake, and Tavares soils. Also included are similar soils that have slope of 5 to 8 percent and a few areas of soils that have no lamellae. The included soils make up about 10 percent of the map unit.

The available water capacity is very low to a depth of 50 inches and low below that depth. Permeability is very rapid in the upper 50 inches of the soil and rapid below. Natural fertility is low. The water table is below a depth of 80 inches.

Some areas of this soil have been cleared. The native vegetation is bluejack, post oak, turkey oak, and scattered longleaf pine and slash pine, with a sparse understory of lopsided indiangrass, chalky bluestem, pineland threeawn, panicum, and annual forbs.

This soil is very severely limited for cultivated crops because of its sandy texture and droughtiness. Intensive soil management practices are required to grow cultivated crops. Droughtiness and rapid leaching of plant nutrients reduce the variety and potential yields of crops that are suited to this soil. The crop rotation system should keep close-growing crops on the soil at least three-fourths of the time. Soil-improving crops and all crop residue should be left on the ground or plowed under. Only a few crops produce good yields without irrigation. Irrigation is generally feasible where irrigation water is readily available.

In places that are relatively free from freezing temperatures, this soil is suitable for growing citrus trees. A ground cover of close-growing plants is needed between the trees to protect the soil from blowing. Good yields can be obtained in some years without irrigation, but a well designed irrigation system which maintains optimum moisture conditions, is needed to assure best yields.

This soil is moderately suited to improved pasture grasses. Deep-rooting plants such as Coastal bermudagrass and bahiagrasses are well suited, but yields are reduced by periodic droughtiness. Fertilizer and lime are needed on a regular basis. Grazing should be controlled to maintain plant vigor.

This soil has moderate potential for commercial production of pine trees. The major management concerns, caused by the sandiness of the soil, are seedling mortality and difficulty in using equipment. Sand pine and slash pine are the best species to plant.

This soil is in capability subclass IVs and in the Longleaf Pine-Turkey Oak Hills range site.

14—Candler fine sand, 5 to 8 percent slopes. This excessively drained, sloping soil is on upland side slopes in the sandhill areas of the county. Individual areas range from about 15 to 60 acres in size. Slopes are smooth to concave.

Typically, the surface layer is very dark grayish brown fine sand about 4 inches thick. The subsurface layer consists of fine sand and extends to a depth of more than 80 inches. It is light yellowish brown in the upper 16 inches and very pale brown in the next 45 inches. In the lower part, between depths of 65 and 80 inches or more, it is very pale brown fine sand and has strong brown loamy sand lamellae. The lamellae are about 1/16 to 1/8 inch wide and 1 to 4 inches long.

Included with this soil in mapping are small areas of Astatula, Tavares, Lake, and Arredondo soils. Also included are small areas of Candler soils that have slope of 0 to 5 percent and 8 to 12 percent. The included soils make up less than 20 percent of the map unit.

The water table is below a depth of 80 inches. The available water capacity is very low to a depth of 65 inches and low below that depth. Permeability is very rapid in the upper 65 inches of the soil and rapid below. Natural fertility is low.

Some areas of this soil have been cleared. The native vegetation is bluejack oak, post oak, turkey oak, scattered longleaf pine, and slash pine. There is a sparse understory of lopsided indiangrass, chalky bluestem, pineland threeawn, hairy panicum, and annual forbs.

This soil is not suitable for most of the common cultivated crops. Droughtiness, rapid leaching of plant nutrients, and strong slopes are limitations to the use of this soil as cropland.

In places that are relatively free from freezing temperatures, this soil is suitable for growing citrus trees. Good yields of fruit can be obtained in some years without irrigation, but for best yields, irrigation should always be used wherever the water is available. Management practices which minimize the hazard of erosion should be used.

This soil is moderately suited to pasture grasses. Grasses such as Coastal bermudagrass and bahiagrasses are best suited, and clovers are not suited. Yields are reduced by periodic droughts. Fertilizer and lime should be applied on a regular basis. Grazing should be greatly restricted to maintain highest yields and good ground cover.

This soil has moderate potential for the commercial production of pine trees. Sand pine and slash pine are the best species to plant. Seedling mortality and limitations on the mobility of equipment are the major management problems.

This soil is in capability subclass VIs and in the Longleaf Pine-Turkey Oak Hills range site.

15—Tavares-Urban land complex, 0 to 5 percent slopes. This map unit consists of areas of Urban land and nearly level to gently sloping, moderately well drained Tavares soils on low ridges (fig. 8). Tavares soils make up 45 to 65 percent of the map unit, and Urban land makes up from 30 to 45 percent. The areas of Tavares soils and Urban land are so intricately mixed, or so small, that it is not practical to separate them in mapping at the scale used.

Tavares soils are sand to a depth of 80 inches or more. Typically, the surface layer is very dark gray and is about 3 inches thick. Beneath the surface layer the sand is yellowish brown and light yellowish brown to a depth of 56 inches, very pale brown to between depths of 56 and 76 inches, and white between depths of 76 and 80

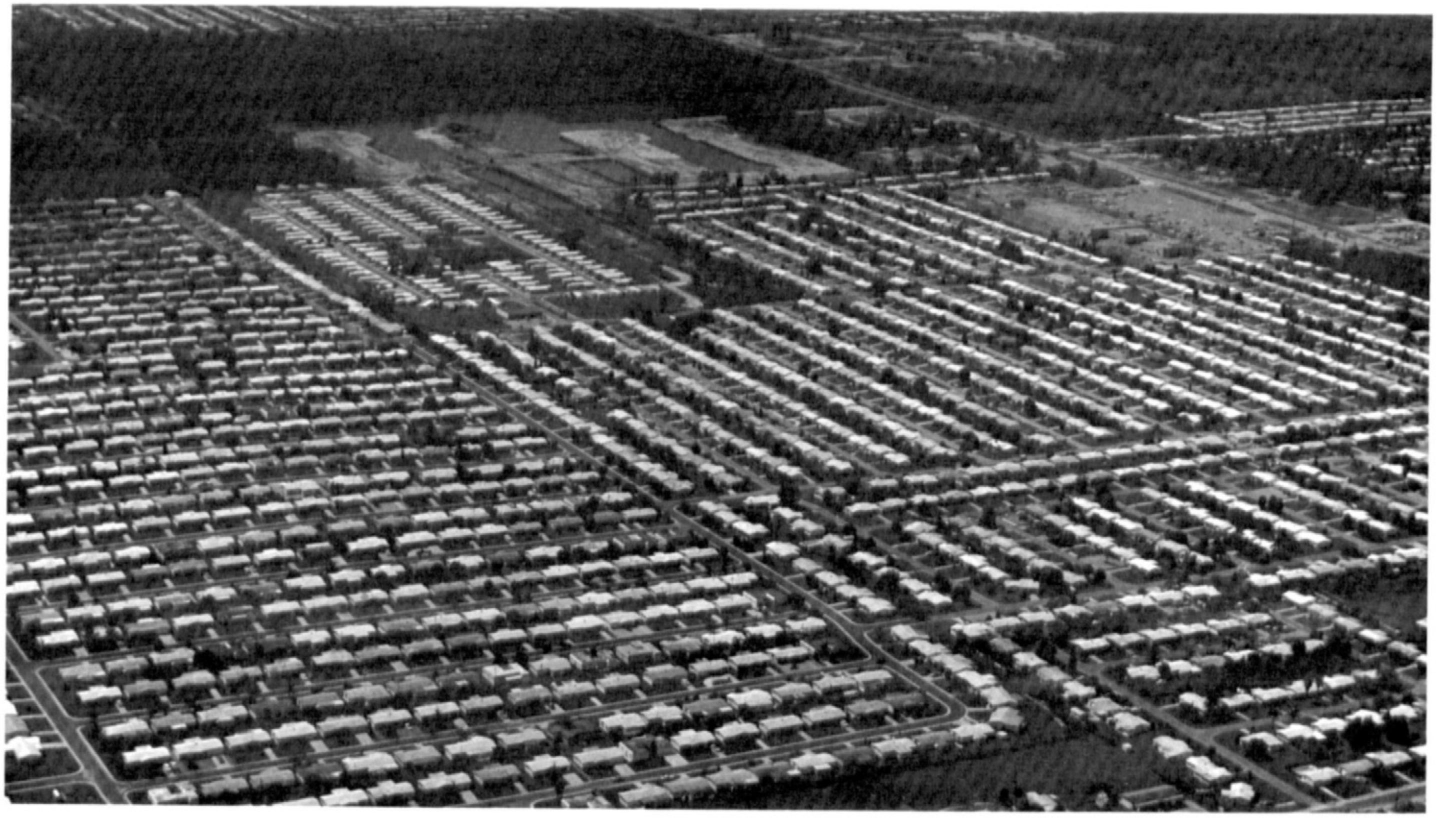


Figure 8.—An area of Tavares-Urban land complex, 0 to 5 percent slopes.

inches or more. In some places, the soil has been radically altered. Some of the low areas have been filled or leveled during construction, and other small areas have been cut, built up, or smoothed.

Urban land is covered by streets, parking lots, buildings, and other structures that so obscure or alter the soils that identification is not feasible.

Included in mapping, and making up 5 to 15 percent of the unit, are small areas of Adamsville and Astatula soils. The somewhat poorly drained Adamsville soils are in the slightly lower and wetter areas. The excessively drained Astatula soils are in higher, convex areas of the landscape.

Most areas of this map unit are artificially drained by sewer systems, surface ditches, and canals. Tavares soils that are not drained have a water table at a depth of 40 to 60 inches for 6 to 10 months in most years. Permeability is very rapid throughout the Tavares soils, and natural fertility is low. The available water capacity is very low. Reaction ranges from very strongly acid to medium acid throughout the soil.

The Tavares soils are mostly in lawn grasses and shrubs. Regular watering and fertilizing are needed for good lawns. Turkey oak and bluejack oak are common in this unit. A few scattered longleaf pine are also present.

Present land use in areas of this complex precludes the use of the Tavares soils for crops, pasture, or woodland.

The Tavares soils have not been assigned to a capability subclass or a range site.

16—Zephyr muck. This nearly level, very poorly drained soil is in depressions. Slopes are smooth to concave and are less than 2 percent.

Typically, the surface layer is black muck about 13 inches thick. The subsurface layer in the upper 10 inches is light brownish gray fine sand that has very dark gray streaks, and in the lower 8 inches it is dark grayish brown fine sand. The subsoil begins about 18 inches below the top of the mineral surface and is about 30 inches thick. It is grayish brown sandy clay loam in the upper 21 inches and gray sandy clay loam in the lower 9 inches. Below this is the substratum, which is grayish brown fine sandy loam in the first 10 inches. Below this, and extending to a depth of 67 inches below the top of the mineral surface layer, is dark grayish brown loamy fine sand.

Included with this soil in mapping are soils that are similar but do not have a muck surface. Also included are small areas of Anclote and Felda soils. The included soils make up about 20 percent of the map unit.

This soil is ponded for more than 6 months in most years. The available water capacity is very high in the surface layer, medium in the subsoil, and low in the subsurface layer. Permeability is rapid in the surface and subsurface layers and is slow in the subsoil. Natural fertility is medium.

The natural vegetation is cypress, cattails, and dense stands of maidencane and sawgrass.

Under natural conditions, this soil is not suitable for crops and citrus trees. The water table, which is above the surface most of the year, severely restricts plant growth. Adequate water control systems are difficult to establish because in most places suitable outlets are not available. However, if a water control system can be installed, the soil can be made moderately suitable for production of good quality pasture.

This soil has moderate potential for pine tree production, but only if a water control system is installed. A water control system designed to remove excess water is needed before trees can be planted. Equipment limitations and seedling mortality are the main management concerns. Slash pine is the best species to plant.

This soil is in capability subclass VIIw and in the Fresh Marsh range site.

17—Immokalee fine sand. This nearly level, poorly drained soil is in broad flatwood areas. Individual areas are somewhat oblong in shape. Slopes are smooth to convex and range from 0 to 2 percent.

Typically, the surface layer is very dark gray fine sand about 4 inches thick. The subsurface layer is gray sand to a depth of about 16 inches and white fine sand to a depth of 33 inches. The subsoil is dark reddish brown fine sand in the upper 12 inches and dark brown fine sand in the lower 17 inches. Below the subsoil, to a depth of 80 inches or more, is very pale brown fine sand.

Included with this soil in mapping are similar soils that differ by having a dark-colored surface layer thicker than 8 inches. Also included are small areas of Myakka and Pomona soils. The included soils make up about 15 percent of the map unit.

The water table is at a depth of less than 10 inches for 2 months in most years and is between depths of 10 and 40 inches for a period of more than 8 months each year. It is at a depth of more than 40 inches during dry periods. The available water capacity is medium in the subsoil but very low or low in the other layers. Permeability is rapid in the surface and subsurface layers and in the substratum and is moderate in the subsoil. Internal drainage and runoff are slow. Natural fertility is low.

Areas that have adequate drainage are used mainly for improved pasture. Other areas are used for range or remain in forest. The natural vegetation is longleaf pine, slash pine, and an undergrowth of sawpalmetto, running oak, gallberry, waxmyrtle, huckleberry, pineland threeawn, and scattered fetterbush.

This soil is very severely limited for cultivated crops because of wetness and sandy texture. Only a limited number of crops can be grown on this soil unless very intensive management practices are followed. This soil can be made suitable for a number of vegetable crops. A water control system is needed to remove excess water in the wetter seasons and to provide water for subsurface irrigation in dry seasons. Crop residue and soil-improving crops should be plowed under. Seedbed preparation should include bedding of the rows.

This soil is poorly suited to citrus trees. Citrus trees can be grown if a carefully designed water control system that maintains the water table below 4 feet is installed. Trees should be planted on beds to help increase the effective depth to the water table, and a plant cover should be maintained between the trees. Trees should not be planted in areas that are subject to freezing in winter.

The soil is well suited to improved pasture grasses. Pangolagrass, improved bahiagrass, and white clover grow well if the pasture is well managed. Water control measures are needed to remove excess surface water after heavy rains. Fertilizer and lime should be applied on a regular basis, and grazing should be controlled.

This soil has moderate potential for pine tree production. The main management problems are equipment limitations during periods of heavy rainfall, seedling mortality, and plant competition. For best results, a water control system to remove excess surface water should be installed. Slash pine is the best species to plant.

This soil is in capability subclass IVw and in the South Florida Flatwoods range site.

18—Electra Variant fine sand, 0 to 5 percent slopes. This nearly level to gently sloping, somewhat poorly drained soil is on upland ridges. Individual areas are irregular in shape. Slopes are smooth to convex.

Typically, the surface layer is fine sand about 5 inches thick. It is dark gray in the upper 2 inches and gray in the lower 3 inches. The subsurface layer is white fine sand about 34 inches thick. The upper part of the subsoil is dark brown fine sand to a depth of 41 inches. Below this, to a depth of 51 inches, it is mixed very dark gray and dark yellowish brown fine sand. Separating the upper and lower parts of the subsoil is 19 inches of dark yellowish brown fine sand and brown fine sand. The lower part of the subsoil is grayish brown sandy loam in the first 4 inches and grayish brown sandy clay loam in the last 4 inches. Soft, white limestone underlies the subsoil and extends to a depth of 80 inches or more.

Included with this soil in mapping are small areas of similar soils in which the upper part of the subsoil is only weakly developed. Also included are small areas of Narcoossee soils. The included soils make up about 12 percent of the map unit.

In most years, under natural conditions, the water table is at a depth of 25 to 40 inches for a cumulative period of 4 months and recedes to a depth of more than 40 inches during drier periods. Infrequently, the water table may rise to within 10 inches of the surface briefly during periods of high rainfall. The available water capacity is very low in the surface and subsurface layers and is low to medium below. Permeability is rapid in the surface and subsurface layers and in the layer between the upper and lower parts of the subsoil. It is moderately rapid in the upper part of the subsoil and slow in the lower part.

The natural vegetation is sand live oak and scattered longleaf pine, slash pine, and sand pine, with an understory of pineland threeawn, sawpalmetto, running oak, blueberry, creeping bluestem, chalky bluestem, indiangrass, low panicum, and numerous forbs.

This soil is not suitable for cultivated crops because of droughtiness and rapid leaching of plant nutrients.

This soil is poorly suited to citrus trees. Good yields of fruit can be obtained in some years without irrigation; but if water is available, the soil should be irrigated for best yields.

The soil is only moderately suitable for improved pasture grasses, even if good management practices are used. It is best suited to grasses, such as bahiagrass. It is not suited to clover. Yields are reduced by periodic drought. Fertilizer and lime should be applied on a regular basis. Grazing should be greatly restricted in order to maintain highest yields and good ground cover.

This soil has moderate potential for commercial production of pine trees. Seedling mortality, mobility of equipment, and plant competition are the major management concerns for commercial tree production. Slash pine is the best species to plant.

This soil is in capability subclass VIs and in the South Florida Flatwoods range site.

19—Paola fine sand, 0 to 8 percent slopes. This excessively drained, nearly level to sloping soil is in the sandhill areas of the county. Individual areas are irregular in shape. Slopes are smooth to concave.

Typically, the surface layer is gray fine sand about 3 inches thick. The subsurface layer is white fine sand and extends to a depth of about 26 inches. The subsoil is brownish yellow fine sand that has a few tongues of white fine sand from the subsurface layer mixed with it. Below a depth of 57 inches, and extending to a depth of 80 inches or more, is very pale brown fine sand.

Included with this soil in mapping are small areas of Astatula, Candler, and Tavares soils. The included soils make up less than 10 percent of the map unit.

The water table is below a depth of 72 inches. Both the available water capacity and natural fertility are very low. Permeability is very rapid throughout.

Few areas of this soil have been cleared. The native vegetation is sand pine, scrub live oak, scattered turkey oak, bluejack oak, and an undergrowth of scattered sawpalmetto, sand heath, cacti, mosses, and lichens.

This soil is not suited to cultivated crops because of extreme droughtiness and rapid leaching of plant nutrients. This soil is poorly suited to citrus trees, and yields are low even if irrigation is used. This soil has only moderate suitability for improved pasture grasses even if good management practices are used. Grasses such as pangolagrass and bahiagrass produce only fair yields.

This soil has low potential for pine tree production. Seedling mortality and mobility of equipment are the major management concerns for commercial tree production. Sand pine is the best species to plant.

This soil is in capability subclass VIs and in the Sand Pine Hills range site.

20—Aripeka fine sand. This nearly level, somewhat poorly drained soil is on low ridges adjacent to the saltwater marsh. Individual areas are commonly long and narrow and are parallel to the marsh. Slopes are less than 2 percent.

Typically, the surface layer is dark grayish brown fine sand about 2 inches thick. The subsurface layer consists of fine sand and is 10 inches thick; it is grayish brown in the upper 7 inches and white in the lower 3 inches. The subsoil begins at a depth of 12 inches and extends to a depth of 26 inches. It is yellowish brown fine sand in the upper 5 inches, strong brown fine sandy loam in the next 6 inches, and strong brown sandy clay loam, which contains limestone cobblestones, in the lower 3 inches. Hard, white and yellow limestone begins at a depth of 26 inches. Solution holes that vary in depth and diameter are in the limestone.

Included with this soil in mapping are similar soils which have a subsoil texture of sandy clay, are more poorly drained, have surface and subsurface layers that are more than 20 inches thick, or have limestone within a depth of 20 inches. The included soils make up about 25 percent of the map unit.

The water table is at a depth of 18 to 30 inches for 2 to 6 months and at a depth of 30 to 60 inches for 6 months or more during most years. During severe storms, this soil may be very briefly flooded by storm tides. The available water capacity is low in the surface and subsurface layers and is medium in the subsoil. Natural fertility is low. Permeability is rapid in the surface and subsurface layers and is moderately rapid in the subsoil.

The native vegetation is longleaf and slash pines, live oak, southern redcedar, and cabbage palm, with an undergrowth dominantly of sawpalmetto, pineland threeawn, and a few scattered gallberry.

This soil is very severely limited for cultivated crops because of the shallow root zone and the hazard of flooding. Management practices include the use of a crop rotation that keeps close-growing plants on the soil at least three-fourths of the time. Soil-improving crops and all crop residue should be left on the land or plowed under. Only a few crops produce good yields without irrigation, and irrigation of these crops is generally not feasible. This soil is not suitable for citrus trees because of the wetness and the hazard of flooding.

This soil is moderately suitable for improved pasture. The pasture should be protected from flooding by storm tides. Fertilizing and liming are needed on a regular basis. Grazing should be controlled for best yields.

This soil has moderately high potential for the production of pine trees. The main management problems are seedling mortality and plant competition. Slash pine is the best species to plant.

This soil is in capability subclass IVw and in the Cabbage Palm Flatwoods range site.

21—Smyrna fine sand. This nearly level, poorly drained soil is in broad flatwood areas. Individual areas are irregular in shape. Slopes are smooth to concave and range from 0 to 2 percent.

Typically, the surface layer is fine sand about 5 inches thick. It is black in the upper 3 inches and very dark gray in the lower 2 inches. The subsurface layer is gray fine sand about 5 inches thick. The subsoil is fine sand about 25 inches thick. It is dark grayish brown in the upper 3 inches, dark brown in the next 3 inches, and dark reddish brown in the next 9 inches, and brown in the lower 10 inches. The substratum to a depth of 80 inches or more is very pale brown and light brownish gray fine sand.

Included with this soil in mapping are small areas of Adamsville, Narcoossee, Ona, Pomona, and Myakka soils. The included soils make up about 10 percent of the map unit.

The water table is at a depth of less than 10 inches for a period of 1 to 4 months in most years and between 10 and 40 inches for more than 6 months. In rainy seasons or after heavy rains, the water table may rise above the surface briefly. In this Smyrna soil, the available water capacity is medium in the subsoil but very low in the other layers. Permeability is rapid in the surface layer, the subsurface layer, and the substratum and is moderate to moderately rapid in the subsoil. Both internal drainage and runoff are slow. Natural fertility is low.

The natural vegetation is longleaf pine, slash pine, and an undergrowth of sawpalmetto, running oak, gallberry, waxmyrtle, huckleberry, pineland threeawn, and scattered fetterbush. Most areas remain in native forest.

This soil is very severely limited for cultivated crops because of wetness and sandy texture. Only a limited number of crops can be grown on this soil unless very intensive management practices are followed. This soil can be made suitable for a number of vegetable crops. A water control system is needed to remove excess water in the wetter seasons and to provide water for subsurface irrigation in dry seasons (fig. 9). Crop residue and soil-improving crops should be plowed under, and seedbed preparation should include bedding of the rows.

This soil has poor suitability for citrus trees, and then only if a carefully designed water control system is installed to maintain the water table below 4 feet. Trees

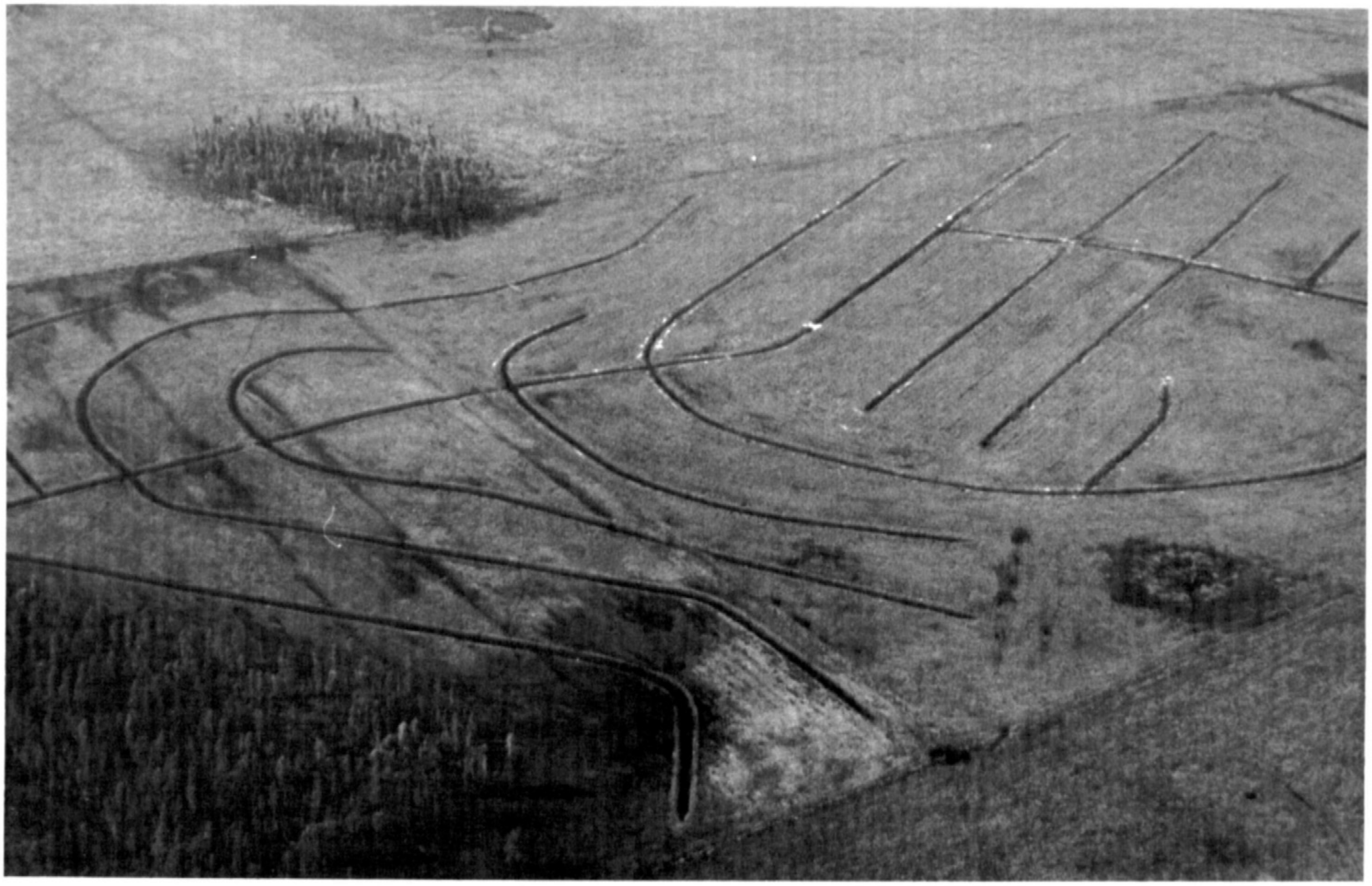


Figure 9.—Seepage irrigation system on Smyrna fine sand. Areas of Sellers soils remain in a natural vegetation of cypress trees. During wet periods, the irrigation system helps to remove surface water.

should be planted on beds to help increase the effective depth to the water table, and a plant cover should be maintained between the trees. Trees should not be planted in areas that are subject to freezing in winter.

This soil is well suited to improved pasture grasses. Pangolagrass, improved bahiagrass, and white clover grow well if well managed. Water control measures are needed to remove excess surface water after heavy rains. Fertilizer and lime are needed on a regular basis, and grazing should be controlled to prevent weakening of the plants.

This soil has moderately high potential for pine tree production. The main management concerns are equipment limitations during periods of heavy rainfall, seedling mortality, and plant competition. For best results, a water control system to remove excess surface water should be installed. Slash pine is the best species to plant.

This soil is in capability subclass IVw and in the South Florida Flatwoods range site.

22—Basinger fine sand. This poorly drained, nearly level soil is in poorly defined drainageways and sloughs in the flatwoods. Individual areas are irregular in shape. Slopes are less than 2 percent.

Typically, the surface layer is dark gray fine sand about 3 inches thick. The subsurface layer is light gray fine sand and extends to a depth of about 10 inches. The subsoil is mixed pale brown and dark brown fine sand about 9 inches thick. The next layer, extending to a depth of about 30 inches, is pale brown fine sand. Below this, to a depth of 42 inches, is light gray fine sand; and below this, to a depth of 80 inches or more, is white fine sand.

Included with this soil in mapping are similar soils that differ by having a dark-colored surface layer more than 3 inches thick. Also included in mapping are small areas of Anclote, Myakka, and Pompano soils. The included soils make up about 15 percent of the map unit.

The water table is at a depth of less than 10 inches for 2 to 6 months annually and at a depth of 10 to 30 inches for a period of more than 6 months in most years. Permeability is very rapid throughout the soil. The available water capacity is very low in the surface and subsurface layers, medium in the subsoil, and low in the substratum. Natural fertility is low.

This soil is mainly covered by natural vegetation, which is scattered longleaf pine and slash pine. The understory consists of waxmyrtle, St.-Johnswort, pineland threeawn, and sawpalmetto.

Under natural conditions, this soil is very severely limited for cultivated crops because of wetness and sandy texture. The number of crops that can be grown on this soil is limited unless very intensive management practices are followed. Proper water control and soil-improving measures can make this soil suitable for a number of vegetable crops. A water control system which removes excess water in wet seasons and provides water through subsurface irrigation in dry seasons is needed. Seedbed preparation should include bedding of the rows. Fertilizer and lime should be supplied according to the needs of the crops.

In its natural condition, this soil is poorly suited to citrus trees. It can be made suitable for growing citrus trees only by installing a carefully designed water control system that maintains the water table below a depth of about 4 feet. Trees should be planted on beds to help increase the effective depth to the water table, and a plant cover should be maintained between the trees. Fertilizer and lime should be applied on a regular basis.

This soil is well suited to improved pasture grasses. Pangolagrass, improved bahiagrass, and white clover grow well when they are well managed. A water control system that removes excess surface water after heavy rains is needed. Fertilizer and lime should be applied on a regular basis, and grazing should be controlled to prevent weakening of the plants.

This soil has moderate potential for slash pine production (fig. 10). A water control system that removes excess surface water is necessary if the potential productivity is to be realized. Seedling mortality and equipment limitations are the main management problems. Slash pine is the best species to plant.

This soil is in capability subclass IVw and in the Slough range site.

23—Basinger fine sand, depressional. This nearly level, poorly drained soil is in depressional areas in the flatwoods. It is also along the edges of some lakes. Areas are circular or elongated. Slopes are smooth to concave and range from 0 to 2 percent.

Typically, the surface layer is dark gray fine sand about 5 inches thick. The subsurface layer is light gray fine sand about 10 inches thick. The subsoil is mixed dark brown and gray fine sand about 20 inches thick. The substratum to a depth of 80 inches or more is pale brown fine sand.

Included with this soil in mapping are small areas of Anclote and Pompano soils. Also included are similar soils that have a thin organic surface layer and similar soils that have a thicker, dark-colored surface layer. The included soils make up about 20 percent of the map unit.

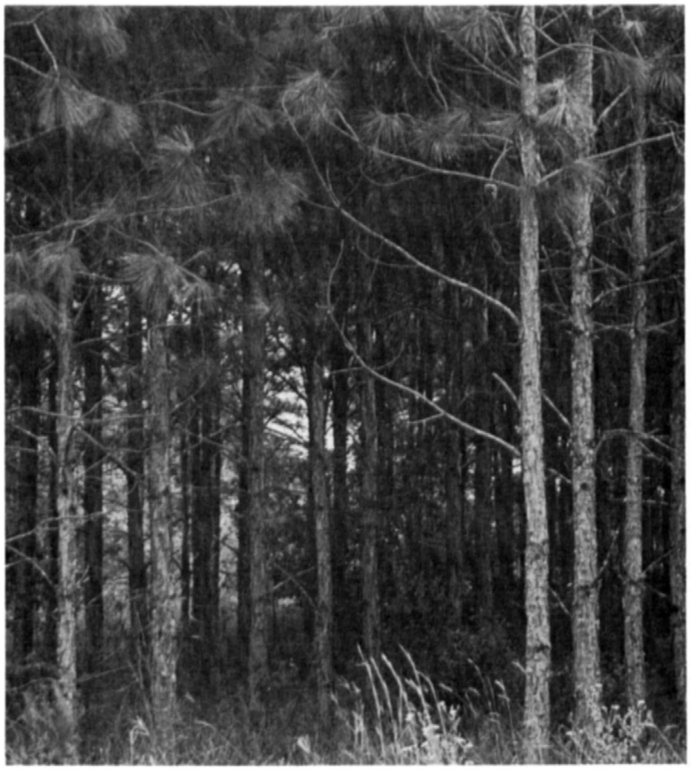


Figure 10.—Slash pine on Basinger fine sand. For best growth of the trees, drainage is needed to remove excess water on many areas of this soil.

This soil is ponded for 6 to 9 months or more in most years. Natural fertility of this soil is low, and fertilization raises the fertility to a moderate level. Internal drainage of this soil is slow in the natural state, but the soil responds rapidly to artificial drainage. The available water capacity is very low in the surface and subsurface layers, medium in the subsoil, and low in the substratum. Permeability is very rapid.

A large part of the acreage is in natural vegetation of bay, cypress, cabbage palm, and water oak. Other areas are covered by maidencane, St.-Johnswort, waterlily, pickerelweed, and other plants that tolerate wetness.

Under natural conditions, this soil is not suitable for cultivated crops or improved pastures. Establishing an adequate drainage system is difficult, and in most places suitable outlets are not available. In its native state, this soil provides watering places and feeding grounds for many kinds of wading birds and other wetland wildlife.

This soil has moderate potential for pine tree production, but only after a good water control system is installed to remove surface water. Equipment limitations, seedling mortality, and plant competition are the main management concerns. Tree planting is feasible only in areas which have adequate surface drainage. In these areas, slash pine is the best species to plant.

This soil is in capability subclass VIIw and in the Maidencane Pond range site.

24—Quartzipsamments, shaped, 0 to 5 percent slopes. These nearly level to gently sloping sandy soils have been reworked and shaped by earthmoving equipment. They commonly are near urban centers or along major highways on the mainland. Many areas are former sloughs, marshes, or shallow ponds that have been filled with various soil materials to the level of surrounding areas or to a higher level. In some areas, the soils originally made up high ridges but have been excavated to below natural ground level and reworked. In a few places, soils have been reworked in place and not moved. Smoothing and shaping have made these soils better suited to use as building sites, roadways, recreation areas, and related uses.

The color and thickness of these soils vary from one area to another, but one of the more common profiles has a surface layer of mixed dark gray, gray, brownish yellow, and light gray fine sand about 25 inches thick. Below this is pale brown fine sand 10 inches thick. A layer of dark gray fine sand is between depths of 35 and 39 inches. Below this, and extending to a depth of more than 80 inches, is brownish yellow fine sand.

Included with these soils in mapping are small areas of natural soils which have not been altered. Also included are small areas which have less than 20 inches of fill material and areas where small amounts of soil material such as sandy loam, sandy clay loam, and sandy clay are mixed with the sand. In some areas, scattered pieces of hard limestone are present. The inclusions generally make up less than 20 percent of the map unit.

The depth to the water table is variable, but ranges from about 20 inches to more than 72 inches, depending on thickness of the fill material and drainage of the underlying soil. In most excavated areas, the water table is below a depth of 72 inches. Permeability is variable, but generally it is very rapid. The available water capacity is also variable but generally is very low. Both natural fertility and the organic matter content are low.

These soils have not been assigned to a capability subclass or a range site.

25—Jonesville fine sand, 0 to 5 percent slopes. This nearly level to gently sloping, well drained soil is on the uplands. Individual areas are irregular in shape and commonly are somewhat long and narrow. Areas of this soil are in the western part of the county, slightly inland from the coast. They tend to parallel the coast line. Slopes are smooth to concave.

Typically, the surface layer is dark gray fine sand about 4 inches thick. The subsurface layer is fine sand about 18 inches thick. It is gray in the upper 6 inches, light gray in the next 6 inches, and light yellowish brown in the lower 6 inches. The subsoil is about 6 inches thick. It is brownish yellow sandy clay loam. The substratum is soft limestone.

Included in mapping are similar soils that have limestone within 20 inches of the surface. Also included are small areas of Kendrick soils. The included soils make up about 15 percent of the map unit.

The available water capacity of this soil is low in the surface layer and the subsoil and is very low in the subsurface layer. Permeability is rapid in the surface and subsurface layers and is moderate to moderately slow in the subsoil. Natural fertility is low.

Most areas are in native vegetation of slash pine, longleaf pine, post oak, live oak, scattered sawpalmetto, and native weeds and grasses.

This soil is severely limited for cultivated crops because of droughtiness, rapid leaching of plant nutrients, and great variability in depth to and occurrence of the subsurface layers and rock. Intensive management practices are required if cultivated crops are grown. Row crops should be planted on the contour in strips alternating with strips of close-growing crops. Crop rotations should include close-growing cover crops at least two-thirds of the time. Soil-improving cover crops and all crop residue should be left on the soil or plowed under. Irrigation is needed for nearly all crops.

This soil is suitable for growing citrus trees in areas that are relatively free from feezing temperatures. A cover of close-growing plants is needed between the trees to protect the soil from blowing and washing during heavy rains. In established groves, good yields of fruit can be obtained without irrigation, but the highest yields can be obtained on a regular basis if irrigation is used.

This soil is moderately suited to pasture and hay crops. Deep-rooting Coastal bermudagrass and the improved bahiagrasses are well suited, but yields are reduced by periodic droughts. Fertilizer and lime should be applied on a regular basis. Grazing should be controlled to maintain plant vigor and a good ground cover.

This soil has moderately high potential for pine tree production. Equipment limitations, seedling mortality, and plant competition are the main management concerns. Slash pine is the most productive species to plant.

This soil is in capability subclass IIIs and in the Longleaf Pine-Turkey Oak Hills range site.

26—Narcoossee fine sand. This somewhat poorly drained soil is on low knolls and ridges in the flatwoods. Individual areas are irregular in shape. Slopes are less than 2 percent.

Typically, the surface layer is very dark gray fine sand about 3 inches thick. The subsurface layer is grayish brown fine sand about 6 inches thick. The subsoil is fine sand about 9 inches thick. It is dark brown in the upper 3 inches and dark gray in the lower 6 inches. Below the subsoil is a layer of light brownish gray fine sand 10 inches thick. Below this are a layer of very pale brown fine sand 9 inches thick and a layer of light yellowish brown fine sand, which extends to a depth of 62 inches. From 62 to 75 inches is pale brown fine sand.

Included with this soil in mapping are small areas of Adamsville and Smyrna soils. Also included are very similar soils which have a second dark-colored sandy subsoil. This second subsoil is commonly at a depth of 75 inches or more. The included soils make up about 20 percent of the map unit.

In most years, under natural conditions, the water table is at a depth of 2 to 3.5 feet for 4 to 6 months. During extended dry periods, the water table recedes to a depth of more than 60 inches. During the wet season, after heavy rains, the water table may briefly rise above a depth of 2 feet. The available water capacity is very low or low. Natural fertility is low. Permeability is rapid in all layers except in the subsoil, which has moderately rapid permeability.

A large part of the acreage of this soil is in natural vegetation of slash pine, longleaf pine, live oak, laurel oak, willow oak, water oak, and an understory of greenbrier, sawpalmetto, pineland threeawn, creeping bluestem, lovegrass, and lopsided indiangrass.

In its natural state, this soil is severely limited for cultivated crops because of periodic wetness. The number of crops that can be grown on this soil is very limited unless intensive water control measures are used. This soil is suitable for many crops if a water control system that removes excess water in wet seasons and provides subsurface irrigation in dry seasons is installed. Soil-improving crops and the residue of all other crops should be plowed under. Fertilizer and lime should be supplied according to the needs of the crop.

This soil is well suited to citrus trees if a water control system that removes excess water from the soil to a depth of about 4 feet is installed. The trees should be planted on beds. A cover of close-growing vegetation should be maintained between the trees to protect the soil from blowing in dry weather and from water erosion during heavy rains. The trees should have regular applications of fertilizer and, for highest yields, should be irrigated in seasons of low rainfall. Citrus should not be grown in areas of this soil that are frequently subject to freezing temperatures.

This soil is well suited to improved pasture grasses. A simple water control system is needed to remove excess surface water in times of heavy rainfall. Fertilizer should be supplied on a regular basis. Grazing should be carefully controlled for maximum production.

This soil has moderately high potential for pine tree production. Equipment limitations, seedling mortality, and plant competition are the main management concerns. Slash pine is the best species to plant.

This soil is in capability subclass IIIw and in the South Florida Flatwoods range site.

27—Anclote fine sand. This nearly level, very poorly drained soil is in depressions along drainageways and low areas surrounding some inland bodies of water. Individual areas range from somewhat oblong to nearly circular. Slopes commonly are concave and are less than 2 percent.

Typically, the surface layer is fine sand about 14 inches thick. The upper half is black and the lower half is very dark gray. Below the surface layer is fine sand, which extends to a depth of more than 80 inches. It is grayish brown in the upper 8 inches, light brownish gray in the next 13 inches, and gray fine sand to a depth of 80 inches or more.

Included with this soil in mapping are small areas of Basinger, Pompano, and Sellers soils. The included soils make up about 15 percent of the map unit.

In most years, under natural conditions, the water table is near or above the surface during wet seasons for 3 to 6 months. The water table recedes to a depth of more than 20 inches during dry seasons. The available water capacity is medium in the surface layer and low in the other layers. Permeability is rapid throughout. However, internal drainage is slow, impeded by a high water table. Natural fertility and the organic matter content of this soil are high in the surface layer and low in the other layers.

The natural vegetation is cypress, cabbage palm, bay, and pond pine. Grasses include maidencane, giant cutgrass, low panicum, sand cordgrass, and other perennial grasses.

This soil is not suitable for cultivated crops unless it is drained. If wetness is controlled, this soil is well suited to many locally important crops. A well designed and maintained water control system can remove excess water rapidly during heavy rains. Other important soil management practices are good seedbed preparation, crop rotation, and regular application of fertilizer. Cover crops should be rotated with row crops and should remain on the soil two-thirds of the time. All crop residue and cover crops should be plowed under.

The soil is not suitable for citrus trees unless it is drained. If water is intensively controlled, those areas that are not subject to damage from cold are moderately suited to citrus trees. The trees should be planted on beds, and close-growing vegetation should be maintained between the trees. Fertilizer should be added on a regular basis.

This soil is too wet for most improved pasture grasses and legumes. Simple drainage measures are needed to remove excess surface water. If water is adequately controlled, such plants as pangolagrass, bahiagrasses, and clovers are well suited to this soil. These plants grow well when they are properly fertilized and limed. Grazing should be controlled for best yields.

This soil has high potential for longleaf pine and slash pine production, but a system designed to remove excess surface water is needed before trees can be planted. Equipment limitations and seedling mortality are the main management concerns. Slash pine is the best tree to plant.

This soil is in capability subclass IIIw and in the Maidencane Pond range site.

28—Pits. Pits are excavations from which soil and geologic material have been removed, primarily for use in road construction or for foundations. Some pits were constructed to retain runoff water. Small areas of waste material, mostly mixed sand and sandy loam, are piled or scattered around the edge of the pits. Pits, locally called borrow pits, are mostly small, but a few are large. Many of the pits have been abandoned. Pits have little or no value for agriculture or pine tree production.

This unit has not been assigned to a capability subclass or a range site.

29—Lacoochee complex. This complex consists of Lacoochee fine sandy loam and other similar nearly level, poorly drained soils in low, broad tidal marsh areas. These soils are so intermingled that they can not be separated at the scale selected for mapping. Individual areas of the complex are irregular in shape. Slopes are smooth to concave and range from 0 to 2 percent.

Lacoochee fine sandy loam makes up about 40 to 60 percent of each mapped area. Typically, the surface layer is light brownish gray fine sandy loam about 8 inches thick. It is high in carbonates. The subsurface layer is dark grayish brown loamy fine sand about 3 inches thick. The subsoil is brownish yellow fine sand to a depth of about 18 inches. Below 18 inches is white soft limestone.

About 20 to 40 percent of the complex consists of soils that are similar to the Lacoochee soil except that limestone is at a depth of slightly less than 40 inches. In many places, these similar soils have a loamy subsoil. About 12 percent of the complex consists of soils that are similar to the Lacoochee soil except that they have a surface layer that is not calcareous. About 10 percent of the complex is scattered small areas of Aripeka and Homosassa soils. Limestone boulders are common on the surface.

The water table fluctuates with the tide, and the soil is flooded during normal high tides. The available water capacity is high in the surface layer and medium below. Permeability is moderate in the surface layer and moderately rapid below.

The natural vegetation is seashore saltgrass, needlegrass rush, and gulf cordgrass. Vegetation is commonly sparse.

This complex is not suited to cultivated crops, citrus trees, or pasture grasses or to use as woodland because of the hazard of frequent flooding and the high salt content.

This complex is in capability subclass VIIIw and in the Salt Marsh range site.

30—Okeelanta-Terra Ceia association. This association consists of nearly level, very poorly drained soils that occur in a regular and repeating pattern. The landscape is a low swampy area that has a few low ridges. The Okeelanta soils are on the edge of areas of the association, where the organic material is thinner. Areas are mostly long and broad, and individual areas of each soil range from about 25 to 100 acres. Slopes are dominantly less than 1 percent.

Okeelanta soils make up about 60 percent of this association. Typically, they are black and very dark gray muck to a depth of about 27 inches. Below the muck is black and gray fine sand.

Okeelanta soils have a water table that is at or near the surface except during extended dry periods. Permeability is rapid throughout. The available water capacity is very high in the organic layers and low in the mineral layers. The organic matter content is very high, and natural fertility is medium.

Terra Ceia soils make up about 30 percent of the association. Typically, Terra Ceia soils are dark reddish brown or black muck to a depth of 80 inches or more.

Terra Ceia soils have a water table that is at or above the surface except during extended dry periods. Runoff is slow. Internal drainage and permeability are rapid. The available water capacity is very high. The organic matter content is very high, and natural fertility is medium.

Soils of minor extent make up about 10 percent of the association. Anclote soils are the most common of the minor soils. Also included are small areas of Myakka and Basinger soils. These soils are on low ridges scattered throughout the association.

This association is still in natural vegetation, which is mostly sweetbay, sweetgum, cypress, longleaf pine, cabbage palm, water oak, and an understory of maidencane, sawgrass, royal fern, cinnamon fern, and various aquatic plants. The vegetation on the marsh areas is mostly sawgrass.

Okeelanta and Terra Ceia soils are not suitable for cultivation in their native state. However, if a water control system is installed, they are well suited to some specialty crops and improved pasture grasses. These soils are not suitable for production of citrus trees or pine trees.

These soils are in capability subclass IIIw and in the Fresh Marsh range site.

31—Udalfic Arents-Urban land complex. This complex consists of small areas of nearly level Udalfic Arents and Urban land that are so intermingled they can not be separated at the scale used for mapping. The complex is in the western part of the county, near the Gulf of Mexico. Slopes are predominantly 0 to 2 percent, but they are much steeper along canal banks.

About 40 to 60 percent of the complex consists of Udalfic Arents. Udalfic Arents are highly variable within short distances, but one of the more common profiles is mixed black fine sand and dark gray, gray, and brownish yellow sandy loam, sandy clay loam, and sandy clay in the upper 30 inches. The next 15 inches is a mixture of brownish yellow sandy clay loam and black sand containing many fragments of limestone, which range up to 3 inches in diameter. Below this is a layer of grayish brown loamy fine sand 15 inches thick. Below this is a layer of brown sandy loam 11 inches thick. White limestone rock is at a depth of 61 inches.

About 30 to 45 percent of the complex is Urban land, which is covered by shopping centers, parking lots, houses, buildings, streets, sidewalks, and other related structures.

Included with this complex in mapping are sanitary landfill sites. The mixed soil materials covering the waste material are Udalfic Arents.

The Udalfic Arents make up mainly lawns, vacant lots, and playgrounds. Present land use precludes the use of these soils for cultivated crops, pasture, citrus, or woodland. These soils are poorly suited to lawn grasses and shrubs unless topsoil is spread over the surface to make a suitable root zone.

The soils in this complex have not been assigned to a capability subclass or a range site.

32—Lake fine sand, 0 to 5 percent slopes. This nearly level to gently sloping, excessively drained soil is along ridgetops and on low hillsides in the uplands. Slopes are smooth to concave.

Typically, the surface layer is dark grayish brown fine sand about 8 inches thick. The next 52 inches is yellowish brown fine sand. Below this, and extending to a depth of more than 80 inches, is brownish yellow fine sand.

Included with this soil in mapping are small areas of Arredondo, Candler, Orlando, and Tavares soils. The included soils make up less than 15 percent of the map unit.

Permeability is rapid throughout the soil, and the water table is below a depth of 120 inches. The available water capacity is very low in all layers. The natural fertility and organic matter content are both low.

The native vegetation on this soil is bluejack oak, blackjack oak, turkey oak, live oak, scattered longleaf pine, and an understory of scattered sawpalmetto, pineland threeawn, bluestem, and paspalum.

This deep sand is very severely limited for cultivated crops. Intensive soil management practices are required when cultivated crops are grown. Droughtiness and rapid leaching of plant nutrients reduce the variety and potential yields of crops that are suited to this soil. Row crops should be planted on the contour in strips alternating with strips of close-growing crops. Crop rotations should keep close-growing crops on the soil at least three-fourths of the time. Soil-improving crops and all crop residue should be left on the ground or plowed under. Only a few crops produce good yields without irrigation. Irrigation is generally feasible where irrigation water is readily available.

In places that are relatively free from freezing temperatures, the soil is suitable for citrus trees. A cover of close-growing plants is needed between the trees to protect the soil from blowing or washing. Good yields of citrus can be obtained in some years without irrigation, but an irrigation system designed to maintain optimum moisture conditions insures best yields.

This soil is moderately suitable for pasture and hay crops. Deep-rooting plants such as Coastal bermudagrass and bahiagrasses are well suited, but yields are reduced by periodic drought. Fertilizer and lime should be applied on a regular basis. Grazing should be controlled to permit plants to recover from grazing and maintain their vigor.

This soil has moderately high potential for pine tree production. Equipment limitations, seedling mortality, and competition from undesirable plants are the main management concerns. Slash pine is the best species to plant.

This soil is in capability subclass IVs and in the Longleaf Pine-Turkey Oak Hills range site.

34—Pompano fine sand. This nearly level, poorly drained soil is on broad low flats and in poorly defined drainageways. Individual areas are irregular to elongated in shape. Slopes are generally less than 1 percent.

Typically, the surface layer is dark gray fine sand about 7 inches thick. Below, fine sand extends to a depth of 80 inches or more. It is grayish brown in the upper 8 inches, very pale brown in the next 18 inches, and light brownish gray in the next 22 inches. Below this, to a depth of 80 inches or more, it is very pale brown.

Included with this soil in mapping are small areas of Adamsville, Anclote, and Basinger soils. The included soils generally make up less than 10 percent of the map unit.

In most years, under natural conditions, the water table is at a depth of less than 10 inches for 2 to 6 months. Even in drier years, it is within a depth of 30 inches for 9 months or more. The available water capacity is very low. Natural fertility is low, and permeability is very rapid.

A large part of the acreage is in natural vegetation of slash pine, cypress, cabbage palm, oak, magnolia, and hickory. The understory is creeping bluestem, lopsided indiangrass, blue maidencane, Florida paspalum, pineland threeawn, low panicum, grassleaf goldaster, inkberry, and sawpalmetto.

Under natural conditions, this soil is very severely limited for cultivated crops because of wetness and poor soil quality. The number of crops that can be grown on this soil is limited unless very intensive management practices are followed. If good water control and soil-improving measures are used, this soil is suitable for a number of vegetable crops. A water control system is needed to remove excess water in wet seasons and to provide water for subsurface irrigation in dry seasons. Seedbed preparation should include bedding of the rows. Fertilizer and lime should be supplied according to the needs of the crops.

In its natural condition, this soil is poorly suited to citrus trees. It can be made suitable for citrus by installing a carefully designed water control system that maintains the water table below a depth of about 4 feet. Trees should be planted on beds to help increase the effective depth to the water table, and a plant cover should be maintained between the trees. Fertilizer and lime are needed on a regular basis.

This soil is well suited to improved pasture grasses. Pangolagrass, improved bahiagrass, and white clover grow well if they are well managed. A water control system that removes excess surface water after heavy rains is needed. Fertilizer and lime should be applied on a regular basis, and grazing should be controlled to prevent weakening of the plants.

This soil has moderate potential for longleaf pine and slash pine production. A water control system to remove excess surface water is needed in order to realize the potential productivity. Seedling mortality and equipment limitations are the main management concerns. Slash pine is the best species to plant.

This soil is in capability subclass IVw and in the Slough range site.

35—EauGallie fine sand. This nearly level, poorly drained soil is on low ridges in the flatwoods. Slopes are smooth to concave and range from 0 to 2 percent.

Typically, the surface layer is black fine sand about 7 inches thick. The subsurface layer is fine sand about 15 inches thick. It is gray in the upper 2 inches, light gray in the next 4 inches, and white in the lower 9 inches. The upper part of the subsoil is fine sand about 13 inches thick. It is very dark grayish brown in the first 3 inches, dark brown in the next 5 inches, and mixed dark brown and dark reddish brown in the last 5 inches. Between the upper and lower parts of the subsoil is a layer of light brownish gray fine sand about 16 inches thick. The lower part of the subsoil is grayish brown fine sandy loam in the first 3 inches, light gray sandy clay loam in the next 5 inches, and greenish gray sandy clay loam to a depth of more than 80 inches.

Included with this soil in mapping are small areas of Vero and Pomona soils. Also included, west of U.S. Highway 19, are EauGallie soils that are underlain by soft limestone containing scattered fragments of hard limestone. The included soils make up about 16 percent of any mapped area.

In most years, under natural conditions, the water table is within a depth of 10 inches for 1 to 4 months and within a depth of 40 inches for more than 6 months. The available water capacity of this EauGallie soil is very low in the surface layer, the subsurface layer, and the layer between the upper and lower parts of the subsoil, and it is medium to low in the subsoil. Natural fertility is low. Permeability is moderate to moderately rapid in the subsoil and is rapid in the other layers.

A large part of the acreage of this soil is in open forest. The natural vegetation is longleaf pine, slash pine, and an understory of sawpalmetto, gallberry, waxmyrtle, and pineland threeawn.

This soil is very severely limited for the production of cultivated crops because of wetness and poor soil quality. Only a limited number of crops can be grown on this soil unless very intensive management practices are followed. This soil can be made suitable for a number of vegetable crops. A water control system is needed to remove excess water in the wetter seasons and to provide water for subsurface irrigation in dry seasons. Crop residue and soil-improving crops should be plowed under. Seedbed preparation should include bedding of the rows.

This soil is suited to citrus trees only after installation of a water control system that maintains the water table below a depth of 4 feet. The trees should be planted on beds to help increase the effective depth to the water table, and a plant cover should be maintained between the trees. Trees should not be planted in areas which are subject to frequent freezing.

The soil is well suited to improved pasture grasses. Pangolagrass, improved bahiagrasses, and white clover grow well if well managed. Water control measures are needed to remove excess surface water after heavy rains. Fertilizer and lime should be applied on a regular basis, and grazing should be controlled to maintain the vigor of the plants.

This soil has moderately high potential for pine tree production. The main management problems are equipment limitations during periods of heavy rainfall, seedling mortality, and plant competition. Best results are achieved if excess surface water is removed. Slash pine is the best species to plant.

This soil is in capability subclass IVw and in the South Florida Flatwoods range site.

36—Candler-Urban land complex, 0 to 8 percent slopes. This complex consists of areas of nearly level to sloping Candler fine sand and of areas of Candler fine sand that has been altered for use as Urban land. These areas are so small and intermixed that it is not practical to separate them at the scale used in mapping. Individual areas are symmetrical in shape.

About 45 to 65 percent of the complex is Candler fine sand. Typically, the surface layer is gray fine sand about 4 inches thick. The subsurface layer consists of pale brown, brown, and light yellowish brown fine sand to a depth of about 60 inches. Between 60 and 80 inches is a very pale brown fine sand that contains lamellae of dark yellowish brown sandy loam and loamy fine sand that range from 1/16 to 1 inch in thickness and have a total thickness of about 4 inches.

The water table is below a depth of 80 inches. In the upper 60 inches of this soil, the available water capacity is very low and permeability is very rapid. Below 60 inches, the available water capacity is low and permeability is rapid. Both natural fertility and the organic matter content are very low.

About 20 to 45 percent of the complex is Urban land. This land is covered by streets, driveways, houses and other buildings, parking lots, and other similar structures.

Included in mapping are areas of other sandy soils, mostly Astatula fine sand.

Present use precludes the use of the Candler soil for crops, pasture, and pine tree production.

This soil has not been assigned to a capability subclass or to a range site.

37—Paola-Urban land complex, 0 to 8 percent slopes. This map unit consists of areas of Urban land and nearly level to sloping, excessively drained Paola soils. The Paola soils make up 45 to 65 percent of the map unit, and Urban land makes up 30 to 45 percent. The Paola soils and Urban land are so intricately mixed that it is not practical to separate them at the scale used in mapping.

A typical Paola soil has a surface layer of gray fine sand about 3 inches thick. The subsurface layer is white fine sand to a depth of about 26 inches. The subsoil is brownish yellow fine sand mixed with a few tongues of white fine sand from the subsurface layer. Below a depth of 57 inches, and extending to a depth of 80 inches or more, is very pale brown fine sand.

The water table is below 72 inches. Both the available water capacity and natural fertility are very low. Permeability is very rapid.

The Urban land part of the unit consists of streets, parking lots, buildings, and other structures that so obscure or alter the soils that identification is not feasible.

Included in mapping, and making up less than 10 percent of the unit, are small areas of Astatula soils.

The areas of soil that are not covered by manmade objects are mostly in lawn grasses and shrubs. Regular watering and applications of fertilizer are needed for good lawns. Sand pine, scrub live oak, turkey oak, and bluejack oak are common in this unit.

Present land use precludes the use of the Paola soils for cultivated crops, pasture, or woodland.

This unit has not been assigned to a capability subclass or a range site.

38—Urban land. In this miscellaneous area, the original soil has been modified through cutting, grading, filling, and shaping for urban development. Major soil properties that originally limited urban uses have been overcome in an acceptable manner. Urban facilities such as paved parking areas, streets, industrial buildings, houses, shopping centers, and underground utilities have been constructed on 75 percent or more of the mapped area. In the places not covered by urban facilities, the soils generally have been so altered that identification is not feasible.

Urban land is primarily in downtown areas, shopping districts, industrial parks, and along main thoroughfares of cities and towns. It is also in isolated shopping centers and small business areas at intersections of primary roads. In places, there are small, less intensively developed areas and small areas of identifiable soils.

This miscellaneous area has not been assigned to a capability subclass or a range site.

39—Chobee soils, frequently flooded. These nearly level, very poorly drained soils are in swamps along the flood plains of most of the major rivers and streams in the county. Most areas of the unit are long and narrow and tend to parallel the streams and rivers. Some large areas lie slightly removed from the streams, but they are connected to the streams by narrow flood channels. The unit consists of Chobee soils and closely similar soils that do not occur in a regular and repeating pattern. One or all of these soils make up about 75 percent of each mapped area. Individual areas of each soil are large enough to map separately in most map units. However, because of inaccessibility and present and predicted use they were not separated in mapping.

In one of the more typical pedons of Chobee soils, the surface layer is fine sandy loam about 11 inches thick. It is black in the upper 6 inches and very dark gray in the lower part. The subsoil is calcareous and extends to a depth of about 56 inches. In the upper 14 inches it is gray sandy clay loam, and below this, it is greenish gray sandy clay loam which has olive brown mottles in the lower part. The substratum, extending from a depth of 56 inches to 80 inches or more, is mixed greenish gray and light greenish gray calcareous sandy clay loam.

Under natural conditions, the water table of the Chobee soils is within 10 inches of the surface for more than 6 months in most years. Flooding occurs frequently during the rainy season. The duration and extent of flooding are variable and are related directly to the intensity and frequency of rainfall. In most years, the lowest lying area and the areas along the streams are flooded during the rainy season. During periods of intense, long-lasting rainfall, nearly all of the area of these soils may be flooded. Flooding normally lasts from

1 to 4 months. Runoff and internal drainage are slow. The available water capacity is medium, and natural fertility is low. Permeability is moderately rapid in the surface layer and slow to very slow in the subsoil.

Some of the soils similar to Chobee soils are on a similar landscape position and are subject to the same flooding. Typically, the surface layer is black loamy fine sand 18 inches thick. Below this, to a depth of 80 inches or more, is very dark gray and light gray sandy loam. These soils have a water table within a depth of 10 inches for more than 6 months during most years. Flooding occurs frequently during the rainy season. The available water capacity is medium in the surface layer and low in the subsoil. Permeability is moderately rapid in the surface layer and moderate in the other layers.

Other soils similar to Chobee soils differ by having limestone at a depth of about 30 inches. These soils are in small areas scattered throughout the map unit but are most significant in the southeastern part of the county. Typically, the surface layer is black and very dark grayish brown fine sand about 10 inches thick. Below this is a layer of dark gray fine sand about 4 inches thick. The subsoil extends from a depth of 14 inches to 30 inches and is light gray sandy clay loam. Hard limestone is at a depth of 30 inches. These similar soils have a water table within a depth of 10 inches for more than 6 months during most years. They are subject to frequent flooding during the rainy season. The available water capacity is medium to low in all layers above the rock. Permeability is rapid in the sandy layers and moderate in the subsoil.

Other soils similar to Chobee soils are slightly less subject to flooding but are still frequently flooded. These similar soils are very slightly elevated on the landscape and are flooded for slightly shorter periods. Typically, the surface layer is black fine sand about 12 inches thick. Below this, and extending to a depth of about 30 inches, is grayish brown fine sand. Next is about 9 inches of dark gray sandy clay loam. Below this and extending to a depth of 80 inches or more is dark gray and gray sandy loam. The water table of these similar soils is at a depth of less than 10 inches for more than 6 months in most years. These soils are frequently flooded. The available water capacity is medium in the surface layer, low in the subsurface layer, and medium in the subsoil. Permeability is rapid in the surface and subsurface layers and is moderately slow in the subsoil.

Minor soils make up about 25 percent of the mapped areas. Pineda, Nobleton, and Zephyr soils are scattered throughout most areas but are most significant in the eastern and south-central parts of the county. Okeelanta and Terra Ceia soils are common minor soils west of U.S. Highway 41.

Nearly all the acreage of this map unit remains in natural vegetation of water oak, cypress, elm, ash, hickory, red maple, and sweetgum. The understory vegetation is water-tolerant plants such as maidencane, sawgrass, swamp primrose, buttonbush, smartweed, and sedges.

The soils in this map unit are not suited to cultivated crops and citrus trees because they are subject to frequent flooding and are very poorly drained. In order to make these soils suitable for cultivated crops and citrus, flooding must be prevented and drainage outlets must be installed. Both of these measures are difficult to implement, since they generally require regulating the streamflow. If water can be controlled, these soils are well suited to many cultivated crops and to improved pasture crops.

These soils have high potential for pine tree production if water control measures can be developed. They are well suited to habitat for wetland and woodland wildlife. Shallow water areas are easily developed, and the vegetation provides abundant food and shelter.

These soils are in capability subclass Vw. They have not been assigned to a range site.

40—Paisley fine sand. This nearly level, poorly drained soil is on low broad ridges in the flatwoods. Individual areas are irregular in shape. Slopes are smooth to concave and range from 0 to 1 percent.

Typically, the surface layer is black fine sand about 3 inches thick. The subsurface layer is grayish brown fine sand 7 inches thick. The subsoil is sandy clay about 42 inches thick. It is light gray in the upper 31 inches and mixed light gray and gray in the lower 11 inches. The substratum is light gray clay and extends to a depth of 80 inches or more.

Included with this soil in mapping are small areas of Vero soils. Also included are small areas of similar soils which have a weak organic stained layer 2 to 3 inches thick over the sandy clay subsoil. The included soils make up less than 18 percent of the map unit.

The water table is at a depth of less than 10 inches for 2 to 6 months during most years and above the surface for less than 1 month in wet seasons. The available water capacity is low in the surface and subsurface layers and is high in the subsoil. Permeability is rapid in the surface and subsurface layers and is slow in the subsoil. Natural fertility is low, but plant response to fertilizer is good.

The natural vegetation is slash pine, longleaf pine, live oak, sweetgum, and an understory of gallberry, pineland threeawn, cabbage palm, hairy panicum, panicum, grapevine, and sedge.

This soil is severely limited for cultivated crops because of wetness. Cobblestones and boulders scattered on the soil surface in some areas may interfere with tillage operations. If adequately drained, this soil is suited to several important crops. A water control system is needed to remove excess surface water and internal water rapidly. The slowly permeable subsoil makes an adequate drainage system difficult to establish and maintain. Seedbeds should be well prepared and the rows should be bedded to aid in lowering the effective depth of the water table. A crop rotation system that keeps close-growing, soil-improving crops on the soil at least two-thirds of the time is needed. These crops and residue of all other crops should be plowed under. Fertilizer should be applied according to crop needs and lime should be added occasionally.

This soil is well suited to citrus trees if water is controlled. The water control system should maintain good drainage to a depth of about 4 feet. The trees should be planted on beds to aid in increasing the effective depth to the water table. Maintaining a cover crop of close-growing vegetation between the trees protects the soil from blowing in dry weather and from washing during rains. Fertilizer and lime should be applied as needed.

This soil is well suited to pasture and hay crops. Water control measures are needed to remove excess surface water during heavy rains. Coastal bermudagrass, bahiagrasses, tall fescue, and clover are well suited. Good management includes water control, fertilization, liming, and control of grazing.

This soil has very high potential for pine tree production. Equipment limitations, seedling mortality, windthrow hazard, and plant competition are management concerns. Slash pine is the best species to plant.

This soil is in capability subclass IIIw and in the South Florida Flatwoods range site.

41—Pits-Dumps complex. This complex consists of Pits, from which limestone, phosphate, or other material has been or is being removed, and Dumps, where the limestone and overburden have been piled. It includes exposed limestone ready for mining and piles of topsoil that is being saved to aid in revegetating the area after mining operations have ceased. Mapping individual areas of Pits and Dumps is not practical.

Mining operations are still active in most areas of this complex, but a few areas have been abandoned. These areas are of little use agriculturally, but have high potential for wildlife habitat and have esthetic value if reshaped and revegetated to conform with existing landscapes. Many of the pits contain water. These areas, mapped separately on the soil map as water, may have high potential for fish if stocked and managed properly.

This unit has not been assigned to a capability subclass or a range site.

42—Pomello fine sand, 0 to 5 percent slopes. This nearly level to gently sloping, moderately well drained soil is on low ridges in the flatwoods. Individual areas are irregular in shape. Slopes are smooth to concave.

Typically, the surface layer consists of dark gray fine sand 3 inches thick and, below that, gray fine sand 3 inches thick. The subsurface layer is white fine sand extending to a depth of 32 inches. The subsoil is fine sand. It is dark reddish brown in the upper 9 inches and dark brown in the next 9 inches. Below that, to a depth of 80 inches or more, it consists of dark yellowish brown and dark brown fine sand.

Included with this soil in mapping are similar soils that have loamy layers beneath the subsoil. Also included are small areas of Immokalee, Myakka, and Narcoossee soils. The included soils make up about 5 percent of the map unit.

The water table is at a depth of 24 to 40 inches for 1 to 4 months and at a depth of 40 to 60 inches for 8 months during most years. The available water capacity is very low except in the subsoil, where it is medium. Natural fertility is low. Permeability is very rapid in the surface and subsurface layers and is moderately rapid in the subsoil.

The natural vegetation on this soil is dwarf live oak, sand live oak, sawpalmetto, longleaf pine, slash pine, pineland threeawn, gallberry, waxmyrtle, running oak, fetterbush, creeping bluestem, broomsedge bluestem, splitbeard bluestem, lopsided indiangrass, switchgrass, panicum, and paspalum.

This soil is not suited to most commonly cultivated crops. It is poorly suited to citrus trees. Only fair yields can be obtained, even under a high level of management. For best yields, sprinkler irrigation should be provided. Fertilizer and lime are needed on a regular basis.

The soil is only moderately suited to improved pasture grasses, even if good management practices are used. It is better suited to bahiagrasses than to other types of grasses, and it is not suited to clovers. Droughtiness is the major limitation except during the wet season. Fertilizer and lime are needed on a regular basis. Grazing should be well controlled to maintain highest yields and good ground cover.

This soil has moderate potential for pine tree production. Seedling mortality, plant competition, and equipment mobility are the major management concerns. Sand pine is the best species to plant.

This soil is in capability subclass VIs and in the Sand Pine Hills range site.

43—Arredondo fine sand, 0 to 5 percent slopes. This nearly level to gently sloping, well drained soil is on uplands. Individual areas are irregular in shape. Slopes are smooth to concave.

Typically, the surface layer consists of dark grayish brown fine sand about 5 inches thick and dark gray fine sand about 3 inches thick. The subsurface layer is about 50 inches thick. It is yellowish brown fine sand in the upper 10 inches and light yellowish brown fine sand in the remaining 40 inches. The subsoil is brownish yellow fine sand in the upper 5 inches. In the next 9 inches it is yellowish brown sandy clay loam mottled with red. Below that, to a depth of 87 inches or more, is light yellowish brown sandy clay loam that is mottled.

Included with this soil in mapping are similar soils in which plinthite makes up more than 5 percent of the subsoil. Also included are small areas of Candler, Kendrick, Lake, Millhopper, and Sparr soils. The included soils make up about 15 percent of the map unit.

In this Arredondo soil, the available water capacity is low in the surface and subsurface layers and is high in the subsoil. Permeability is rapid in the surface and subsurface layers and is moderate or moderately rapid in the subsoil. Natural fertility is low.

Most areas of this soil are cleared and planted to pasture grasses or citrus trees. The natural vegetation in the remaining areas is loblolly pine, slash pine, longleaf pine, live oak, laurel oak, water oak, magnolia, hickory, dogwood, and an understory of bluestem, dwarf huckleberry, smilax, yellow jasmine, paspalum, pineland threeawn, and other native grasses and weeds.

This soil is severely limited for cultivated crops. Droughtiness and rapid leaching of plant nutrients are the principal limitations for row crops. Special soil-improving measures are needed if this soil is cultivated. Strips of cultivated row crops should be planted on the contour in alternation with strips of close-growing crops. The crop rotation system should keep the soil under close-growing vegetation at least two-thirds of the time. Soil-improving cover crops and all crop residue should be left on the soil or plowed under. All crops need frequent fertilizing and liming. Irrigation of a few high-value crops can be feasible where irrigation water is readily available.

This soil is well suited to citrus trees in places that are relatively free from freezing temperatures. A ground cover of close-growing plants is needed between the trees to protect the soil from blowing. Good yields can generally be obtained without irrigation. Where irrigation water is readily available, however, the increased yields make irrigation feasible.

This soil is well suited to pasture and hay crops. Deep-rooting plants such as Coastal bermudagrasses and bahiagrasses normally grow well if the soil is adequately fertilized and limed. Yields are occasionally reduced by extended drought. Grazing should be controlled for highest yields.

This soil has moderately high potential for pine tree production. Equipment limitations, seedling mortality, and plant competition are the main management concerns. Slash pine is the best species to plant.

This soil is in capability subclass IIIs and in the Mixed Hardwood-Pine Forest range site.

44—Arredondo fine sand, 5 to 8 percent slopes. This sloping, well drained soil is on uplands. Individual areas are long, narrow, and winding. Slopes are smooth to concave.

Typically, the surface layer is very dark grayish brown fine sand about 3 inches thick. The subsurface layer is about 49 inches thick. It is yellowish brown fine sand in the upper 6 inches, brownish yellow fine sand in the next 26 inches, and light yellowish brown fine sand in the lower 17 inches. The subsoil is strong brown loamy fine sand in the upper 3 inches and strong brown sandy clay loam in the next 20 inches. Below this, to a depth of about 80 inches or more, it is strong brown fine sandy loam.

Included with this soil in mapping are soils that are similar but have over 5 percent plinthite, and soils that are similar but have a slope gradient less than 5 percent or greater than 8 percent. Also included are small areas of Candler, Kendrick, Lake, and Sparr soils. The included soils make up about 20 percent of the map unit.

The available water capacity is low in the surface and subsurface layers and is medium to high in the subsoil. Permeability is rapid in the surface and subsurface layers and is moderate or moderately rapid in the subsoil. Natural fertility is low.

Some areas of this soil have been cleared and are mostly in pasture or citrus. The natural vegetation in wooded areas is slash pine, longleaf pine, or loblolly pine, live oak, laurel oak, water oak, hickory, magnolia, dogwood, and an understory of bluestem, dwarf huckleberry, greenbrier, yellow jasmine, paspalum, pineland threeawn, and other native grasses and weeds.

This soil is very severely limited for cultivated crops mainly because of droughtiness and steepness of slope. Special measures to improve the soil and control erosion should be used if cultivated crops are grown. Droughtiness, rapid leaching of plant nutrients, and erosion are the principal limitations of this soil for row crops. Cultivated row crops should be planted on the contour in strips alternating with strips of close-growing crops. The crop rotation system should keep the soil under close-growing, soil-improving crops at least three-fourths of the time. Crop residue should be left on the soil or plowed under. Frequent fertilizing and liming are needed for all crops.

This soil is well suited to citrus trees in places that are relatively free from freezing temperatures. A ground cover of close-growing vegetation is needed between the trees to protect the soil from blowing and washing. Good yields of citrus can be obtained in most years without irrigation.

This soil is moderately suited to pasture and hay crops. Under normal conditions, deep-rooting plants such as Coastal bermudagrass and bahiagrass grow well if the soil is fertilized and limed. Yields are occasionally restricted by extended drought. Grazing should be controlled for highest yields.

This soil has moderately high potential for pine tree production. Equipment limitations, seedling mortality, and plant competition are the main management concerns. Slash pine is the best species to plant.

This soil is in capability subclass IVs and in the Mixed Hardwood-Pine Forest range site.

45—Kendrick fine sand, 0 to 5 percent slopes. This well drained, nearly level to gently sloping soil is on uplands. Areas are large to small and are irregular in shape. Slopes are smooth to concave.

Typically, the surface layer is dark grayish brown fine sand about 7 inches thick. Next is a layer of fine sand about 21 inches thick. It is yellowish brown in the upper 7 inches and light yellowish brown and brownish yellow in the lower 14 inches. The subsoil extends to a depth of 73 inches. In the upper 4 inches it is yellowish brown sandy clay loam. In the next 14 inches it is mottled, yellowish brown sandy clay loam, and in the next 27 inches it is mottled, brownish yellow sandy clay loam. Below this to a depth of about 80 inches is mixed very pale brown, reddish yellow, and pink sandy clay loam.

Included with this soil in mapping are small areas of Arredondo, Blichton, and Nobleton soils. Also included are small areas of Kendrick soils that have slope of 5 to 8 percent. The included areas make up about 15 percent of the map unit.

The water table is below a depth of 72 inches The available water capacity is low in the surface and subsurface layers and is medium in the subsoil. Natural fertility is medium. Permeability is rapid above the subsoil and moderate in the subsoil.

The natural vegetation is a forest of longleaf pine, loblolly pine, slash pine, magnolia, dogwood, laurel oak, live oak, water oak, and an understory of bluestem species, indiangrass, hairy panicum, and annual forbs.

This soil is limited for cultivated crops because of the slope. It is moderately suited to many crops grown in the area. Erosion control measures are needed. These include contour cultivation of row crops in alternate strips with cover crops and the use of a crop rotation system that keeps cover crops on the soil at least half of the time. Cover crops and all crop residue should be left on the soil or plowed under. For maximum yields, good seedbed preparation, fertilizing, and liming are needed. This soil is droughty in dry seasons, and yields are often reduced by untimely drought. Irrigation of some high-value crops is feasible where irrigation water is readily available.

This soil is well suited to citrus trees in areas that are relatively free from freezing temperatures in winter. A ground cover of close-growing vegetation is needed between the trees to protect the soil from blowing and water erosion. Fertilizer and lime should be applied for highest yields.

This soil is well suited to pasture and hay crops. Improved pasture plants such as clover, tall fescue, Coastal bermudagrass, and the improved bahiagrasses are well suited. Fertilizing, occasional liming, and controlled grazing are needed to maintain highest yields and good ground cover.

The potential for pine tree production is high. Moderate seedling mortality, equipment limitations, and plant competition are the main management concerns. Slash pine and loblolly pine are the best species to plant.

This soil is in capability subclass IIe. It has not been assigned to a range site.

46—Cassia fine sand, 0 to 5 percent slopes. This nearly level to gently sloping, somewhat poorly drained soil is on low ridges in the flatwoods. Individual areas are irregular in shape. Slopes are smooth to concave.

Typically, the surface layer is black fine sand about 9 inches thick. The subsurface layer is about 9 inches thick. It is gray fine sand in the upper 5 inches and light gray fine sand in the lower 4 inches. The subsoil is fine sand about 13 inches thick. It is dark reddish brown in the upper 8 inches and dark brown in the lower 5 inches. The next layer, to a depth of about 65 inches, is brown fine sand. Below that is very dark gray fine sand.

Included with this soil in mapping are small areas of Adamsville, Narcoossee, Myakka, and Pomello soils. The included soils make up about 16 percent of any mapped area.

The water table is at a depth of 15 to 40 inches for a period of about 6 months in most years and recedes to a depth of more than 40 inches during very dry seasons. The available water capacity is low in the surface and subsurface layers and is medium in the subsoil. Natural fertility is low. Permeability is rapid in the surface and subsurface layers, moderate to moderately rapid in the subsoil, and rapid in the substratum. Internal drainage and runoff are slow.

The natural vegetation is longleaf pine and slash pine, with an undergrowth of sawpalmetto, running oak, huckleberry, pineland threeawn, creeping bluestem, lovegrass, and lopsided indiangrass. Most areas remain in forest.

This soil is not suitable for cultivated field crops because of droughtiness and rapid leaching of plant nutrients.

The soil is only moderately suited to citrus trees. In some years, trees produce well without irrigation, but for best results irrigation should be used wherever water is available.

The suitability of this soil for improved pasture grasses is moderate under good management. Grasses such as bahiagrass are best suited. Clover is not suited. Yields are reduced by periodic drought. Fertilizer and lime should be applied on a regular basis. Grazing should be greatly restricted to maintain highest yields and good ground cover.

This soil has moderate potential for pine tree production. Seedling mortality, equipment limitations, and plant competition are the major management concerns for commercial tree production. Sand pine is the best species to plant.

This soil is in capability subclass VIs and in the Sand Pine Hills range site.

47—Weekiwachee muck. This nearly level, very poorly drained organic soil is in the tidal marsh. Individual areas are irregular in shape. Slopes are less than 1 percent.

Typically, the surface is black muck about 31 inches thick. Beneath the muck is dark gray fine sand about 8 inches thick. Below this, to a depth of 44 inches, is white soft limestone surrounding cobblestones and boulders of hard limestone. Below a depth of 44 inches is hard limestone that can be chipped but not dug with a spade.

Included with this soil in mapping are small areas of Lacoochee and Homosassa soils. The included soils make up about 15 percent of the map unit.

The water table fluctuates with the tide. This soil is flooded during normal daily high tides. The available water capacity is very high in the organic layers and medium in the mineral layers. Natural fertility is high, and permeability is moderately rapid.

The native vegetation is dominantly needlegrass rush, seashore saltgrass, marshhay cordgrass, big cordgrass, and smooth cordgrass.

This soil is not suitable for cultivated crops, citrus trees, pasture grasses, or woodland. The potential for these uses is very low because of the daily hazard of flooding and the high content of salt and sulfur.

This soil is in capability subclass VIIIw and in the Salt Marsh range site.

48—Lochloosa fine sand, 0 to 5 percent slopes. This nearly level to gently sloping, somewhat poorly drained soil is on the uplands. Individual areas are irregular in shape. Slopes are smooth to concave.

Typically, the surface layer is very dark gray fine sand about 7 inches thick. The subsurface layer is about 29 inches thick. It is brown fine sand in the upper 10 inches and very pale brown fine sand in the lower 19 inches. The subsoil is yellowish brown fine sandy loam in the first 6 inches and yellowish brown sandy clay loam in the next 21 inches. Below this is light gray sandy clay loam.

Included with this soil in mapping are small areas of similar soils that have thinner surface and subsurface layers and small areas of other similar soils that are less loamy in the lower part of the subsoil. Also included are small areas of Blichton, Kendrick, and Sparr soils. The included soils make up about 10 percent of the map unit.

The water table is at a depth of 30 to 60 inches for a period of 1 to 4 months during most years. It rises to a depth of about 15 inches for 1 to 3 weeks during rainy seasons. The water table recedes to a depth of more than 60 inches in the dry season. Wetness is caused by seepage in the more sloping areas. Permeability is rapid in the surface and subsurface layers and is moderate to moderately rapid in the subsoil. The available water capacity is low in the surface and subsurface layers and is medium in the subsoil.

This soil is moderately limited for cultivated crops because of wetness. In the soil's natural state, only crops that are tolerant of slight wetness can be grown. Water control is needed for highest yields of most crops. A crop rotation system that keeps close-growing crops on the soil at least half the time should be followed. Soil-improving cover crops and all crop residue should be left on the land or plowed under. For best yields, good seedbed preparation, fertilization, and liming are required.

This soil is moderately suited to citrus trees in places that are relatively free from freezing temperatures. A ground cover of close-growing vegetation is needed between the trees to minimize erosion. Good yields of citrus can generally be obtained without irrigation, but irrigating when needed produces optimum yields. Fertilizer and lime should be applied as needed.

The soil is well suited to use as pasture. Such grasses as Coastal bermudagrass and improved bahiagrasses grow well if well managed. Several legumes are also well suited. For highest yields, fertilizer and lime should be applied and grazing should be controlled.

This soil has high potential for pine tree production. There are no serious management problems. Slash pine is the best species to plant.

This soil is in capability subclass IIw. It has not been assigned to a range site.

49—Blichton fine sand, 0 to 2 percent slopes. This nearly level, poorly drained soil is on the uplands. Individual areas are irregular in shape. Slopes are smooth to concave.

Typically, the surface layer is very dark gray fine sand about 6 inches thick. The subsurface layer is about 16 inches thick. It is grayish brown fine sand in the upper 8 inches and gray fine sand in the lower 8 inches. The subsoil is gray fine sandy loam to a depth of about 28 inches and gray sandy clay loam to a depth of about 63 inches.

Included with this soil in mapping are similar soils that have slope of 2 to 5 percent. Also included are similar soils in which plinthite makes up less than 5 percent of the subsoil. Small areas of Flemington Variant, Lochloosa, Nobleton, and Wauchula soils are also included in mapping. The included soils make up about 18 percent of any mapped area.

In most years, under natural conditions, the water table is at a depth of less than 10 inches for a cumulative period of 1 to 4 months. In drier seasons, it recedes to a depth of more than 40 inches. The available water capacity is low in the surface and subsurface layers and is medium in the subsoil. Natural fertility is low. Permeability is rapid in the surface and subsurface layers and is moderately slow in the subsoil.

The natural vegetation in areas of this soil is predominantly slash pine, longleaf pine, loblolly pine, oak, hickory, magnolia, sweetgum, and pineland threeawn.

This soil is severely limited for cultivated crops because the rooting zone is restricted by the water table. The number of crops that can be grown on this soil is limited unless proper management practices are followed (fig. 11). If good water control and soil-improving measures are used, this soil is well suited to a number of vegetable crops. A water control system is needed to remove excess water in wet seasons. A rotation system in which close-growing, soil-improving crops are on the soil three-fourths of the time and row crops are on the soil one-fourth of the time should be used. Crop residue and soil-improving crops should be plowed under. Seedbed preparation should include bedding of the rows to lower the effective depth to the water table. Fertilizer and lime should be supplied according to the needs of the crops.

This soil is poorly suited to citrus trees unless very intensive management practices are used. In areas that are subject to frequent freezing temperatures, it is not suited. If a carefully designed water control system is

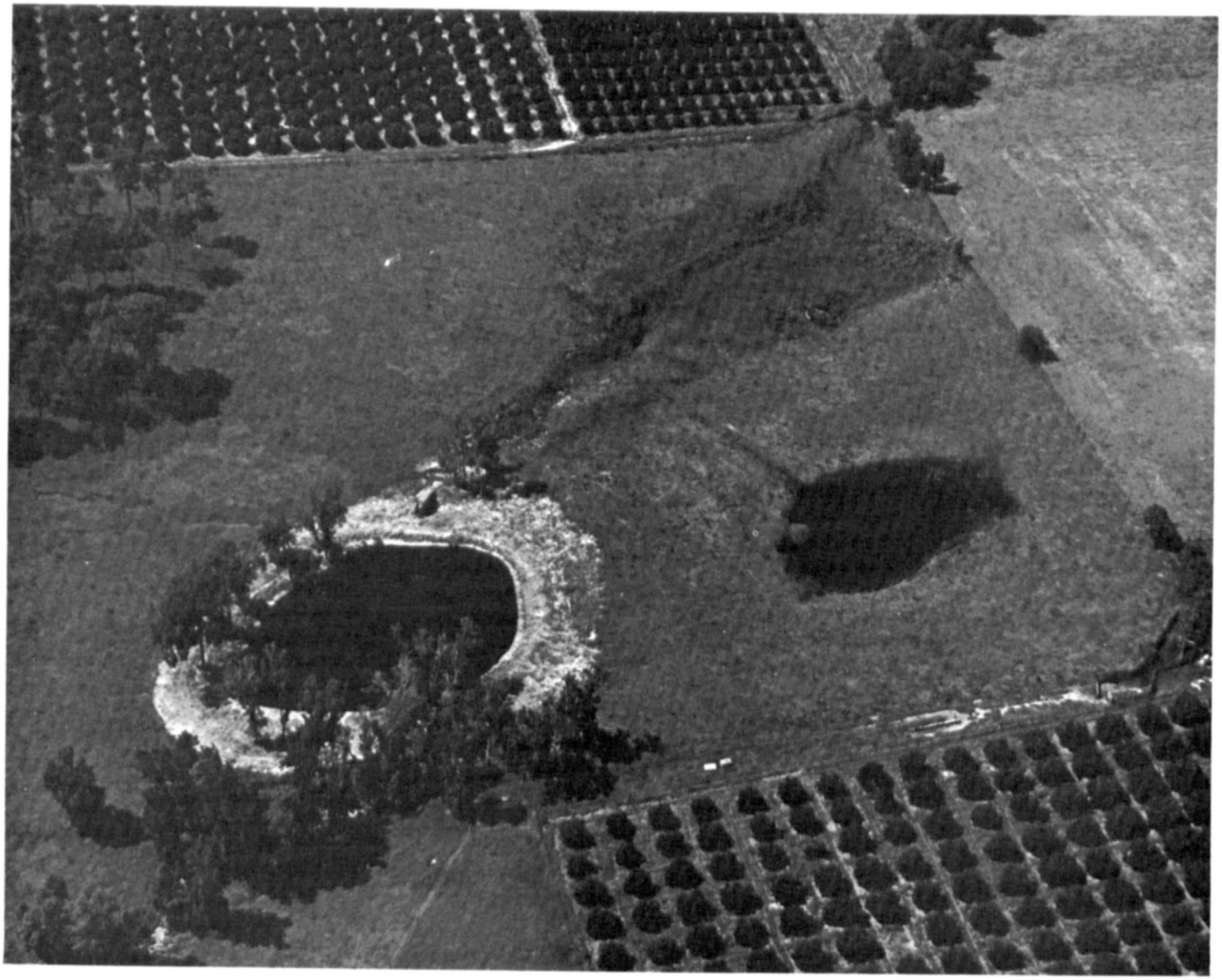


Figure 11.—Excavated pond in a natural drainageway on Blichton fine sand, 0 to 2 percent slopes. The more elevated areas of this soil have been planted to citrus trees and the lower areas to improved pasture grasses.

installed, this soil can be made moderately suitable for citrus production. The use of a water control system combined with the practice of planting the trees on beds should keep the effective depth to the water table greater than 3 feet at all times. Other management practices include maintaining plant cover between the trees and applying fertilizer and lime on a regular basis.

This soil is well suited to pasture crops. Pangolagrass, improved bahiagrass, and white clover grow well when they are well managed. Water control measures are needed to remove excess surface water after heavy rains. Fertilizer and lime should be applied on a regular basis, and grazing should be controlled to maintain plant vigor.

This soil has high potential for longleaf pine and slash pine production. Best results can be achieved by removing excess surface water. Equipment limitation is the main management concern. Slash pine is the best species to plant.

This soil is in capability subclass IIIw. It has not been assigned to a range site.

50—Blichton fine sand, 2 to 5 percent slopes. This gently sloping, poorly drained soil is commonly in small areas on the uplands. Individual areas are irregular in shape. Slopes are smooth to concave.

Typically, the surface layer is very dark gray fine sand about 8 inches thick. The subsurface layer is fine sand and extends to a depth of 38 inches. It is grayish brown in the upper 6 inches and light gray in the lower 24 inches. The subsoil is light gray fine sandy loam in the upper 6 inches and light gray sandy clay loam in the next 6 inches. Below this, to a depth of 62 inches, it is light gray sandy clay. The underlying material to a depth of 80 inches or more is mottled light gray, strong brown, and yellowish brown fine sandy loam.

Included with this soil in mapping are areas of similar soils in which the subsoil is less than 5 percent plinthite and areas of similar soils in which the surface and subsurface layers combined are thicker than 40 inches. Also included are small areas of Lochloosa, Flemington Variant, Nobleton, and Wauchula soils. The included soils make up about 18 percent of any mapped area.

The water table is at a depth of less than 10 inches for a cumulative period of 1 to 4 months during most years. In the drier season, it recedes to a depth of more than 40 inches. Permeability is rapid in the surface and subsurface layers and is moderately slow in the subsoil. The available water capacity is low in the surface layer and medium in the subsoil.

The natural vegetation is predominantly oak, hickory, magnolia, sweetgum, pineland threeawn, slash pine, longleaf pine, and loblolly pine.

This soil is severely limited for cultivated crops because the rooting zone is restricted by the water table. The number of crops that can be grown on this soil is limited unless good management practices are followed. If proper water control and soil-improving measures are used, this soil is well suited to a number of vegetable crops. A water control system is needed to remove excess water in wet seasons. A rotation system in which close-growing, soil improving crops are on the land three-fourths of the time and row crops are on the land one-fourth of the time should be used. Crop residue and soil improving crops should be plowed under. Seedbed preparation should include bedding of the rows to lower the effective depth to the water table. Fertilizer and lime should be supplied according to the needs of the crops.

This soil is poorly suited to citrus trees unless very intensive management practices are used. In areas that are subject to frequent freezing temperatures, it is not suited. If a carefully designed water control system is installed, this soil is moderately suited to citrus production. The use of a water control system combined with the practice of planting the trees on beds should keep the effective depth to the water table greater than 3 feet at all times. A plant cover should be maintained between the trees, and fertilizer and lime should be supplied on a regular basis.

This soil is well suited to pasture crops. Pangolagrass, improved bahiagrass, and white clovers grow well if they are well managed. Water control measures are needed to remove excess surface water after heavy rains. Fertilizer and lime should be applied on a regular basis, and grazing should be controlled to maintain vigor of the plants.

This soil has high potential for longleaf pine and slash pine production. Best results can be achieved by removing excess surface water. Equipment limitation is the main management concern. Slash pine is the best species to plant.

This soil is in capability subclass IIIw. It has not been assigned to a range site.

51—Blichton fine sand, 5 to 8 percent slopes. This soil is sloping and poorly drained. Individual areas are long and narrow and generally are on hillsides adjacent to intermittent streams. Slopes are smooth to concave.

Typically, the surface layer is dark gray fine sand about 4 inches thick. The subsurface layer is about 23 inches thick. It is gray fine sand in the upper 18 inches and light brownish gray fine sand in the lower 5 inches. The subsoil is light gray fine sandy loam in the upper 12 inches. Below that, to a depth of about 55 inches, is light brownish gray sandy clay loam. Below that is light gray sandy clay.

Included with this soil in mapping are similar soils that are severely eroded. Also included are similar soils that have slope of less than 5 percent or more than 8 percent. Small areas of Flemington Variant, Lochloosa, Nobleton, and Wauchula soils are included. The included soils make up about 18 percent of any mapped area.

This soil is saturated during wet seasons. The available water capacity is low in the surface and subsurface layers and is medium in the subsoil. Natural fertility is low. Permeability is rapid in the surface and subsurface layers and is moderately slow in the subsoil.

The native vegetation is predominantly slash pine, longleaf pine, loblolly pine, oak, hickory, magnolia, sweetgum, and pineland threeawn.

This soil is very severely limited for cultivated crops because of the hazard of erosion and wetness. The rooting zone is restricted by seepage water that comes to the surface in wet seasons. The wetness is difficult to control. Intensive erosion control measures should be used, and drains should be installed to remove excess water. Row crops should be planted on beds to increase the effective depth to the water table, and the row crops should be planted on the contour in alternate strips with cover crops. The rotation system should keep a cover crop on the land at least two-thirds of the time. Crop residue and the cover crops should be plowed under. Proper seedbed preparation, fertilization, and liming are needed for maximum yields.

In places that are relatively free from freezing temperatures, this soil is well suited to citrus crops. Seepage water entering these areas from higher elevations should be intercepted, and the water table should be lowered by means of tile installation or open drains. The trees should be planted on beds on the contour, and close-growing vegetation should be maintained between the trees. Proper fertilization and liming are needed.

This soil is well suited to pasture crops. Coastal bermudagrass, improved bahiagrasses, and clover produce well when they are well managed. Fertilizing, liming, and controlled grazing are required to obtain the best yields and maintain a good ground cover.

This soil has high potential for longleaf pine and slash pine production. Limitations to the use of equipment are the main management concerns. Slash pine is the best species to plant.

This soil is in capability subclass IVw. It has not been assigned to a range site.

52—Samsula muck. This very poorly drained, nearly level soil is in low depressional areas. Individual areas are circular to oblong in shape. Slopes are less than 2 percent.

Typically, the surface layer is muck about 32 inches thick. It is black in the upper 3 inches, dark reddish brown in the next 21 inches, and very dark grayish brown in the lower 8 inches. Beneath the muck is fine sand and mucky fine sand to a depth of 80 inches or more. Below this is a layer of very dark grayish brown mucky fine sand 3 inches thick. Dark gray fine sand is in the next 4 inches, and below this, to a depth of 80 inches or more, is gray and light gray fine sand.

Included with this soil in mapping are similar soils that differ by having loamy material within 52 inches of the surface. Also included are small areas of Sellers soils. In some areas, similar soils having a muck layer more than 40 inches thick are included. The included soils make up about 20 percent of the map unit.

In most years, under natural conditions, the water table is at or near the surface for 6 to 12 months and is commonly above the surface for very long periods. The available water capacity is very high in the muck layers and low in the sandy layers. Permeability is rapid throughout. Natural fertility is medium, and the organic matter content is very high.

The native vegetation is mostly loblollybay and scattered cypress, maple, gum, and pine. The ground cover is greenbrier, fern, and other aquatic plants.

In its natural state, this soil is not suitable for cultivation, but with an adequate water control system it can be made suitable for some crops and improved pasture grasses. A water control system that removes excess water when crops are on the land and keeps the soil saturated at other times is needed. Fertilizers that contain phosphates, potash, and minor elements are needed. Heavy applications of lime are needed also.

If water is properly controlled, this soil is well suited to improved pasture grasses and clover. The water control system should maintain the water table near the surface to prevent excessive oxidation of the organic horizons. Fertilizers high in potash, phosphates, and minor elements are needed. Control of grazing is needed for maximum yields.

This soil is not suitable for citrus trees or pine trees.

This soil is in capability subclass IVw and in the Fresh Marsh range site.

53—Sparr fine sand, 5 to 8 percent slopes. This is a sloping and somewhat poorly drained soil. Individual areas are commonly shaped like a quarter moon. Slopes are smooth to concave.

Typically, the surface layer is very dark grayish brown fine sand about 6 inches thick. The subsurface layer is 51 inches thick. It is pale brown fine sand in the upper 8 inches, brown fine sand in the next 10 inches, light yellowish brown fine sand in the next 13 inches, and very pale brown fine sand in the lower 20 inches. The subsoil is yellowish brown fine sandy loam in the upper 3 inches. The next layer is grayish brown sandy clay loam to a depth of about 69 inches, and below this is light gray sandy clay loam to a depth of 80 inches or more.

Included with this soil in mapping are similar soils that are severely eroded. Also included are similar soils where slope is less than 5 percent and some where slope is 8 to 10 percent. Also included are small areas of Arredondo, Blichton, Nobleton, and Tavares soils. The included soils make up about 15 percent of the map unit.

In most years, under natural conditions, the water table is at a depth of 20 to 40 inches for 1 to 4 months. The water table is commonly perched on the surface of the subsoil. In this soil, the available water capacity is low in the surface and subsurface layers and is medium to high in the subsoil. Natural fertility is low. Permeability is rapid in the surface and subsurface layers and is moderate in the subsoil.

The native vegetation is oak, hickory, magnolia, sweetgum, slash pine, longleaf pine, and loblolly pine. Some areas have an understory of inkberry, waxmyrtle, scattered sawpalmetto, and pineland threeawn.

This soil is very severely limited for cultivated crops. Droughtiness and rapid leaching of plant nutrients limit the variety and potential yields of crops that can be grown on this soil. Row crops should be planted on the contour in alternate strips with a close-growing crop. Close-growing crops should be grown at least 3 out of 4 years. All crops should be fertilized and limed as needed. Soil-improving crops and all crop residue should be left on the surface or plowed under. The soil is too steep to be irrigated effectively. However, irrigation of a few high-value crops can be feasible where irrigation water is readily available. The rate of application should be carefully controlled so as to prevent runoff and erosion.

The soil is well suited to citrus trees in places that are relatively free from the danger of freezing. A vegetative ground cover is needed between the trees to protect the soil from washing and blowing. Good yields of oranges and grapefruit can be obtained in most years without irrigation, but if water is available, irrigation is generally feasible in dry seasons. The water should be applied at a rate that is low enough to prevent washing of the soil.

The soil is moderately suited to use as pasture. Deep-rooting grasses such as bermudagrass and bahiagrass are well suited. Fertilizing and liming are needed, and grazing should be controlled to maintain maximum yields and good ground cover.

This soil has moderately high potential for pine tree production. The main management concerns are equipment mobility, seedling mortality, and plant competition. Slash pine is the best species to plant.

This soil is in capability subclass IVs. It has not been assigned to a range site.

54—Flemington Variant fine sand, 2 to 5 percent slopes. This gently sloping, poorly drained soil is in the uplands. Individual areas are irregular in shape. Slopes are smooth to concave.

Typically, the surface layer is very dark gray fine sand about 5 inches thick. The subsoil extends to a depth of about 46 inches. It is grayish brown, light brownish gray, and light gray clay. Below the subsoil is about 17 inches of white clay, and below this a layer of light gray clay extends to a depth of 80 inches or more.

Included with this soil in mapping are similar soils that have slope of 0 to 2 percent. Also included are similar soils that have a dark-colored surface layer as thick as 12 inches. Small areas of Blichton soils are included in mapping. The included soils make up about 15 percent of any mapped area.

In most years, if this soil is in an unaltered natural state, the seasonal high water table is perched in the surface layer and the upper part of the subsoil. These layers are saturated for 1 to 4 months during wet seasons. The available water capacity in this soil ranges from low to medium in the surface layer and from medium to high in the subsoil. Natural fertility is moderate. Permeability is moderately rapid to rapid in the surface layer and very slow in the subsoil.

The natural vegetation is dominantly sweetgum, slash pine, longleaf pine, hickory, magnolia, ironwood, laurel oak, water oak, scattered redcedar, and dogwood and an understory of American beautyberry, huckleberry, and deer tongue.

This soil is severely limited for cultivated crops by wetness and the shallowness to the clayey subsoil. The very slowly permeable subsoil makes establishing and maintaining water control systems difficult. If water is adequately controlled, however, the soil is suitable for some cultivated crops. Excess water on the surface and in the soil should be removed quickly. Crops should be rotated, and a close-growing, soil-improving crop should be on the land two-thirds of the time. Seedbeds should be well prepared, and rows should be bedded. Planting should be on the contour. For highest yields, fertilizer and lime should be applied according to the needs of the crops.

This soil is poorly suited to citrus trees. A water control system that maintains the water table at a depth of about 4 feet is needed. Planting the trees on beds helps to provide better surface drainage and increases the effective depth to the water table. Cover crops should be maintained between trees. Areas that are subject to frequent freezing temperatures should not be planted to citrus.

This soil is well suited to improved pasture grasses. Pangolagrass, improved bahiagrasses, and white clover grow well if properly managed. Water control measures are needed to remove excess surface water after heavy rainfall. Fertilizer and lime should be applied on a regular basis. Grazing should be controlled to maintain plant vigor.

This soil has high potential for the production of pine trees. Excess surface water should be removed for best results. Equipment limitations and plant competition are the main management concerns. Slash pine is the best species to plant.

This soil is in capability subclass IIIw. It has not been assigned to a range site.

55—Homosassa mucky fine sandy loam. This nearly level, very poorly drained soil is in the tidal marsh. Individual areas are irregular to elongated in shape. Slopes are less than 1 percent.

Typically, the surface layer is 16 inches thick. The upper 11 inches is very dark gray mucky fine sandy loam, and the lower 5 inches is very dark grayish brown loamy fine sand. The next layer is grayish brown loamy fine sand 9 inches thick, and below this is a layer of light brownish gray loamy fine sand 3 inches thick. Between depths of 28 and 37 inches is light gray, soft limestone.

Included with this soil in mapping are large areas of similar soils that differ mainly by having fine sandy loam or mucky sandy clay loam texture in the surface layer. Also included are small areas of Lacoochee and Weekiwachee soils. The included soils make up about 40 percent of any mapped area.

The water table fluctuates with the tide. The soil is flooded daily during normal high tides. The available water capacity is very high in the surface layer and is medium below. Permeability is moderately rapid to rapid throughout the soil.

The native vegetation is predominantly seashore saltgrass, needlegrass rush, smooth cordgrass, sawgrass, and marshhay cordgrass.

This soil is not suited to cultivated crops, citrus trees, pasture grasses, or woodland because of the daily hazard of flooding and the high content of salt and sulfur.

This soil is in capability subclass VIIIw and in the Salt Marsh range site.

56—EauGallie-Urban land complex. This complex is 45 to 65 percent EauGallie soils and 30 to 45 percent Urban land. The areas of EauGallie soils and the areas of Urban land are so intricately mixed, or so small, that it is not practical to separate them at the scale used in mapping. The mapped areas are symmetrical in shape. The slope ranges from 0 to 2 percent.

Typically, EauGallie soils have about 5 inches of mixed sand fill on the surface. The surface layer is black fine sand about 4 inches thick. The subsurface layer is fine sand about 19 inches thick. It is gray in the upper 12 inches and light gray in the lower 7 inches. The upper part of the subsoil is fine sand about 21 inches thick. It is black in the first 5 inches, dark reddish brown in the next 7 inches, and brown in the last 9 inches. About 3 inches of grayish brown fine sand is between the upper and lower parts of the subsoil. The lower part of the subsoil is grayish brown fine sandy loam in the first 6 inches and then grayish brown sandy clay loam to a depth of 80 inches or more.

The Urban land is covered by streets, parking lots, buildings, and other structures that so obscure or alter the original soils that identification is not feasible. The streets are 1 to 2 feet lower than the surrounding area and are used for draining surface water. Soil material removed from the street beds has been spread on the adjacent areas and shaped for building sites and lawns.

Included in mapping, and making up less than 10 percent of the complex, are small areas of Basinger and Vero soils.

In most years, under natural conditions, the water table in the EauGallie soils is within a depth of 10 inches for 1 to 4 months and within a depth of 40 inches for more than 6 months. The available water capacity is very low in all the layers except the subsoil, where it is low to medium. Natural fertility is low. Permeability is moderate to moderately rapid in the subsoil and is rapid in the other layers.

The present and predicted uses of the soils in this complex preclude their use for cultivated crops, pasture, or woodland.

This complex has not been assigned to a capability subclass or a range site.

57—Vero Variant fine sand. This nearly level, poorly drained soil is in the flatwoods. Individual areas are relatively long and narrow. Areas of this soil occur in two parts of the county. The largest areas are west of Highway 19. These are rapidly being reduced in extent by mining operations for limestone. The other areas of this soil are in the Withlacoochee State Forest in the northeastern part of the county. Here, delineations are small and scattered. Slopes range from 0 to 2 percent.

Typically, the surface layer is fine sand about 9 inches thick. It is black in the upper 4 inches and dark gray in the lower 5 inches. The subsurface layer is gray fine sand about 7 inches thick. The upper part of the subsoil is fine sand about 10 inches thick. It is dark reddish brown in the upper 3 inches, dark brown in the next 4 inches, and brown in the lower 3 inches. Separating the upper and lower parts of the subsoil is a layer of light yellowish brown fine sand about 3 inches thick. Next is strong brown fine sandy loam to a depth of 35 inches and below that, strong brown sandy clay loam to a depth of about 39 inches. Soft, white limestone is at a depth of 39 inches, and hard limestone is at a depth of about 45 inches.

Included with this soil in mapping are similar soils that differ by having a loamy subsoil within 20 inches of the surface. Also included are small areas of Aripeka soils. The included soils make up about 30 percent of the map unit.

In most years, the water table is at a depth of 10 to 40 inches for more than 5 months. It is at a depth of less than 10 inches for less than 45 days in wet seasons, and it is at a depth of more than 40 inches during very dry seasons. Areas of this soil located west of Highway 19 may be covered by water for short periods after severe storms. The available water capacity is very low or low in the surface and subsurface layers and is medium in the subsoil. Permeability is rapid in the surface layer, the subsurface layer, and the layer between the upper and lower parts of the subsoil. It is moderate in the subsoil. Natural fertility is low.

Native vegetation is longleaf pine, slash pine, cabbage palm, and an undergrowth that is dominantly sawpalmetto, pineland threeawn, inkberry, lopsided indiangrass, chalky bluestem, creeping bluestem, hairy panicum, and fetterbush lyonia.

This soil is severely limited for cultivated crops because of wetness and poor soil quality. The number of crops that can be grown on this soil is limited unless very intensive management practices are followed. This soil can be made suitable for a number of vegetable crops. A water control system is needed to remove excess water in the wetter seasons and to provide water for subsurface irrigation in the dry seasons. Crop residue and soil-improving crops should be plowed under. Seedbed preparation should include bedding of the rows.

This soil is moderately suitable for citrus trees, but only if a carefully designed water control system that maintains the water table below a depth of 4 feet is installed. Trees should be planted on beds, and a plant cover should be maintained between the trees. Trees should not be planted in areas that are subject to freezing temperatures.

This soil has moderate suitability for improved pasture grasses. Pangolagrass, improved bahiagrasses, and white clover grow well if well managed. Water control measures are needed to remove excess surface water after heavy rains. Fertilizer and lime should be applied on a regular basis, and grazing should be controlled to prevent weakening of the plants.

This soil has moderately high potential for pine tree production. The main management concerns are equipment limitations during periods of heavy rainfall, seedling mortality, and plant competition. For best results, a simple system to remove excess surface water should be installed. Slash pine is the best species to plant.

This soil is in capability subclass IIIw and in the South Florida Flatwoods range site.

58—Tomoka muck. This very poorly drained, nearly level soil is in low depressional areas. Individual areas are circular to oblong. Slopes are less than 2 percent.

Typically, the surface layer is muck about 22 inches thick. It is dark reddish brown in the upper 10 inches and black in the lower 12 inches. Next is a layer of fine sand about 5 inches thick that has mixed colors of gray, very dark gray, and dark gray. Beneath this is gray fine sandy loam to a depth of 32 inches. Gray sandy clay loam is between depths of 32 and 46 inches, and gray fine sandy loam is below this to a depth of 55 inches or more.

Included with this soil in mapping are similar soils that differ by having a layer of organic material less than 16 inches thick. Also included are small areas of Samsula and Sellers soils. The included soils make up about 15 percent of the map unit.

This soil has a water table at or near the surface for 6 to 12 months. Under natural conditions, it is covered by water for very long periods. The available water capacity is very high in the organic layers and low to medium in the mineral layers. Permeability is rapid in the organic and sandy layers and is moderate to moderately rapid in the loamy layers. Natural fertility is medium, and the organic matter content is very high.

The native vegetation is sawgrass, lily, reed, sedge, waxmyrtle, and other aquatic plants. Cypress, redbay, white bay, maple, and pond pine are common tree species.

In its natural state, this soil is not suitable for cultivation; but with an adequate water control system, it is well suited to some crops and improved pasture grasses. The water control system should remove excess water when crops are on the land and keep the soil saturated at other times to prevent decomposition of the organic matter. Fertilizers that contain phosphates, potash, and minor elements are needed. Heavy applications of lime are needed.

If wetness is properly controlled, this soil is well suited to improved pasture grasses and clover. A water control system should maintain the water table near the surface to prevent excessive oxidation of the organic horizons. Fertilizers that are high in potash, phosphates, and minor elements are needed. Grazing should be controlled for maximum yields.

This soil is not suitable for citrus trees or pine trees.

This soil is in capability subclass IIIw and in the Fresh Marsh range site.

59—Newnan fine sand, 0 to 5 percent slopes. This somewhat poorly drained soil is on low ridges in the flatwoods. Individual areas are irregular in shape.

Typically, the surface layer is dark gray fine sand about 5 inches thick. The subsurface layer is light brownish gray fine sand about 17 inches thick. The upper part of the subsoil is fine sand about 16 inches thick. It is dark brown in the upper 4 inches, dark yellowish brown in the next 7 inches, and yellowish brown in the next 5 inches. A layer of very pale brown fine sand 6 inches thick separates the upper and lower parts of the subsoil. The lower part of the subsoil is yellowish brown sandy clay loam in the upper 26 inches and grayish brown sandy clay loam below. It extends to a depth of 80 inches or more.

Included in mapping are small areas of Adamsville, Narcoossee, and Sparr soils. The included soils make up about 15 percent of the map unit.

The water table is at a depth of about 24 to 40 inches for about 2 to 4 months during most years and recedes to a depth of more than 60 inches during drier periods. The available water capacity is medium in the subsoil and low in the other layers. Natural fertility is low. Permeability is very slow to moderately slow in the subsoil and rapid to moderately rapid in the other layers.

A large part of the acreage is in natural vegetation of slash pine, longleaf pine, live oak, laurel oak, turkey oak, and an understory of greenbrier, sawpalmetto, pineland threeawn, creeping bluestem, lovegrass, and lopsided indiangrass.

In its natural state, this soil is severely limited for cultivated crops because of periodic wetness. The number of crops that can be grown on this soil is very limited unless a water control system that removes excess water in wet seasons and provides subsurface irrigation in dry seasons is installed. Soil-improving crops and the residue of all other crops should be plowed under. Fertilizer and lime should be supplied according to the needs of the crop.

This soil has moderate suitability for growing citrus trees if a water control system that rapidly removes excess water to a depth of about 4 feet is installed. The trees should be planted on beds to help increase the effective depth to the water table. A cover of close-growing vegetation should be maintained between the trees to protect the soil from blowing in dry weather and from washing during heavy rains. Fertilization is needed on a regular basis, and for highest yields, irrigation is needed in seasons of low rainfall. Citrus should not be grown in areas of this soil that are frequently subject to freezing temperatures.

This soil has moderate suitability for improved pasture grasses and hay (fig. 12). A simple water control system is needed to remove excess surface water in times of heavy rainfall. Fertilizer should be applied on a regular basis. Grazing should be carefully controlled to maintain healthy plants for maximum production.

This soil has moderately high potential for longleaf pine and slash pine production. Equipment limitations, seedling mortality, and plant competition are the main management concerns. Slash pine is the best species to plant.

This soil is in capability subclass IIIs and in the South Florida Flatwoods range site.

60—Palmetto-Zephyr-Sellers complex. This complex consists of areas of nearly level, poorly drained Palmetto soils and closely similar soils and small areas of nearly level, very poorly drained Zephyr and Sellers soils. The soils are so intermixed that they cannot be separated at the scale selected for mapping. The complex occurs as elongated areas in the flatwoods. Palmetto soils are on long, narrow, interwinding sloughs about 50 to 200 feet

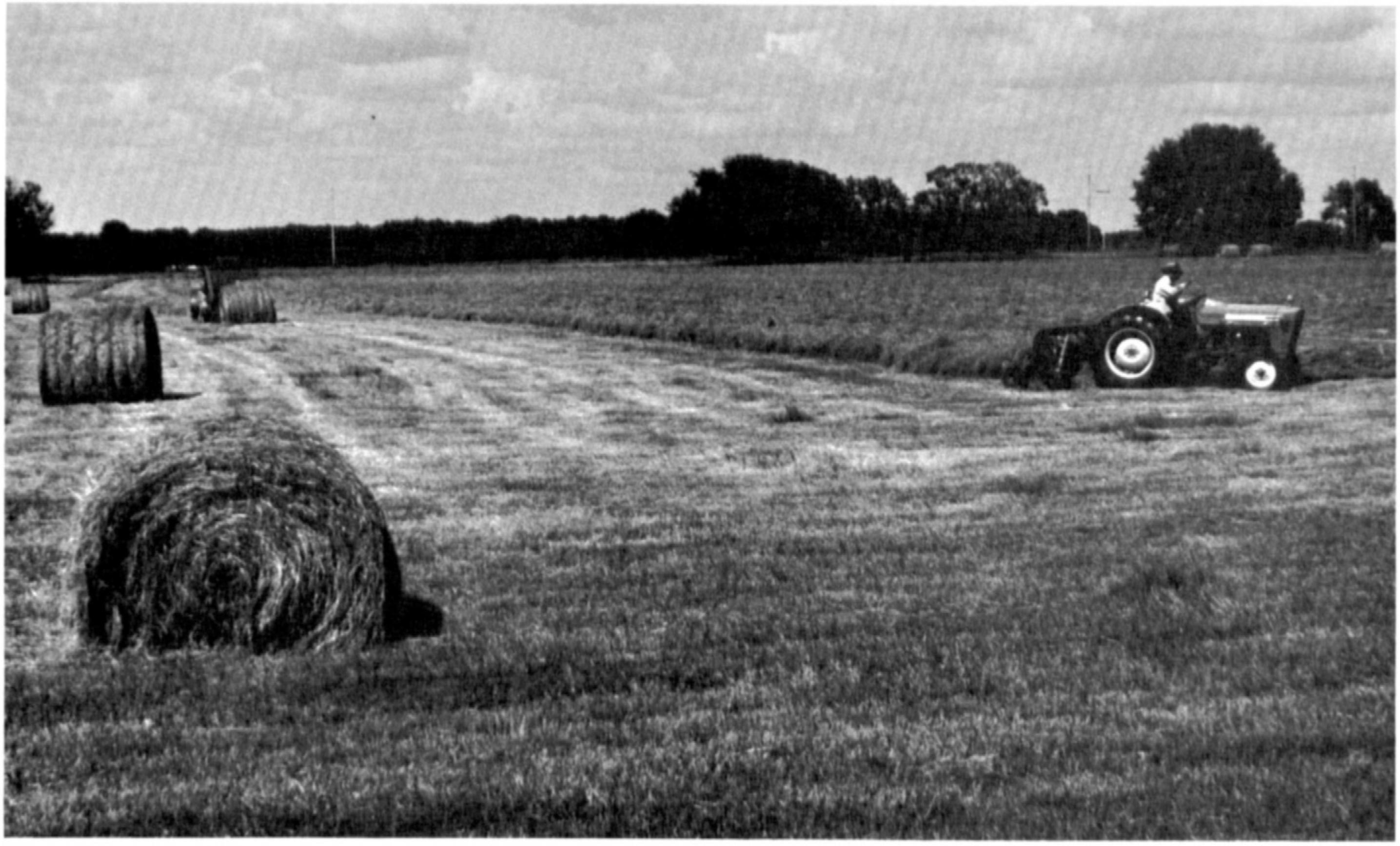


Figure 12.—Hay growing on Newnan fine sand. If well managed, this soil can produce good yields of hay. It can also be used for improved pasture during some parts of the year.

wide, which are interspersed with circular depressions containing Zephyr and Sellers soils. Individual depressions are less than 4 acres in size. Slopes are less than 2 percent.

Palmetto soils and closely similar soils make up about 45 to 60 percent of each mapped area. Typically, these soils have a surface layer of black fine sand about 4 inches thick. The subsurface layer is gray fine sand about 6 inches thick. The upper part of the subsoil is fine sand about 18 inches thick. It is very dark grayish brown in the upper 10 inches and mixed dark brown and brown in the lower 8 inches. A layer of pale brown and very pale brown fine sand about 18 inches thick separates the upper and lower parts of the subsoil. The lower part of the subsoil is light brownish gray fine sandy loam in the first 2 inches and light brownish gray sandy clay loam below that to a depth of 57 inches. Between depths of 57 and 68 inches is light gray sandy clay loam, and below this to a depth of 80 inches or more is gray sandy clay loam.

In these soils the water table is at a depth of less than 10 inches for 2 to 6 months annually and at a depth of 10 to 30 inches for more than 6 months during most years. Water may stand on the surface for brief periods after heavy rains. Permeability is rapid in the surface layer and the sandy upper part of the subsoil and is moderately slow in the loamy lower part of the subsoil. Natural fertility is low. The available water capacity is low in the surface layer and sandy part of the subsoil and is medium in the loamy part of the subsoil.

Zephyr soils make up about 10 to 15 percent of each mapped area. The surface layer is black muck in the upper 5 inches and black fine sand in the next 7 inches. The subsurface layer is about 10 inches thick. It is light gray fine sand in the upper 4 inches and grayish brown fine sand in the lower 6 inches. The subsoil is 37 inches thick. It is grayish brown fine sandy loam in the upper 3 inches, dark grayish brown sandy clay loam in the next 12 inches, and grayish brown sandy clay loam in the lower 22 inches. Below the subsoil to a depth of 80 inches or more is light gray loamy fine sand.

Zephyr soils are ponded for more than 6 months in most years. The available water capacity is high in the muck part of the surface layer and low to medium below. Permeability is rapid in the surface layer and slow in the subsoil.

Sellers soils make up about 10 to 15 percent of each mapped area. Typically, these soils have a layer of dark reddish brown mucky loamy fine sand about 5 inches thick on the surface. The mineral surface layer is black fine sand about 28 inches thick. Below the surface layer to a depth of 80 inches or more is fine sand. It is dark brown in the upper 5 inches, yellowish brown in the next 18 inches, and pale brown below.

In most years, under natural conditions, the Sellers soils are ponded for 3 to 6 months. The water table recedes to a depth of about 30 inches or more during the drier seasons. The available water capacity is medium to high in the surface layer and low below. Permeability is rapid throughout. However, internal drainage is slow, impeded by the water table. Both natural fertility and the organic matter content are high to a depth of about 33 inches and low below this depth.

Minor soils make up about 15 percent of the complex. Basinger soils are the most common of these soils.

The natural vegetation in the wet depressions is bay, cypress, cattails, maidencane, sawgrass, pickerelweed, and various perennial grasses. The slough areas are vegetated with various native bluestem, panicum, perennial goobergrass, maidencane, toothachegrass, cutgrass, sand cordgrass, and pineland threeawn. Slash pine, longleaf pine, pond pine, and closely spaced sawpalmetto are in some places.

The Palmetto soils are very severely limited for farming under natural conditions. Only a limited number of crops can be grown on these soils unless very intensive management practices are followed. Such practices include growing soil-improving crops and installing a water control system that removes excess water in wet seasons and provides water for subsurface irrigation in dry seasons. Crop residue and soil-improving crops should be plowed under. Seedbed preparation should include bedding of rows, and the soil should be fertilized and limed according to the needs of the crop.

Palmetto soils have poor suitability for citrus trees. The trees should not be grown in areas where temperatures frequently reach the freezing point. A water control system should be carefully designed to maintain the water table below a depth of about 4 feet. Trees should be planted on beds, and close-growing vegetation should be maintained between the trees. Fertilizer and lime should be applied as needed.

The Sellers and Zephyr soils are not suited to cultivated crops and citrus trees because ponding severely restricts plant growth. Adequate water control systems are difficult to establish in most places because suitable outlets are not available. However, if a water control system can be installed, these soils can be used to produce pasture of high quality.

Zephyr soils are moderately suited to improved pasture grasses. Pangolagrass, improved bahiagrasses, and white clover grow well if the pasture is well managed. Water control measures are needed to remove excess surface water after heavy rains. Fertilizer and lime should be applied on a regular basis, and grazing should be controlled.

Palmetto soils have moderate potential for pine tree production. The major management concerns are equipment mobility during periods of high rainfall and plant competition. Seedling mortality is commonly high. A simple water control system should be installed to remove excess surface water. The Zephyr and Sellers soils have high potential for slash pine production. A good water control system designed for the removal of excess water is needed before trees can be planted. Slash pine is the best species to plant.

Palmetto soils are in capability subclass IVw, and Zephyr and Sellers soils are in capability subclass VIIw. Palmetto soils are in the Slough range site, and Zephyr and Sellers soils are in the Fresh Marsh range site.

61—Pompano fine sand, frequently flooded. This nearly level, poorly drained soil is in well defined drainageways and on flood plains. Areas are mostly long and narrow and are generally adjacent to streams and rivers. Slopes are generally less than 1 percent.

Typically, the surface layer is black fine sand about 6 inches thick. It has mottles of light brownish gray. Below, fine sand extends to a depth of 80 inches or more. It is dark grayish brown in the upper 3 inches and light gray below.

Included in mapping are small areas of Anclote and Basinger soils. The included soils generally make up less than 25 percent of the map unit.

In most years, under natural conditions, the water table is at a depth of less than 10 inches for 2 to 6 months. Even in drier years, it is within a depth of 30 inches for 9 months or more. The soil is frequently flooded for brief periods in most years. The available water capacity is very low. Natural fertility is low, and permeability is very rapid.

This soil remains in natural vegetation of water oak, cypress, cabbage palm, sweetgum, willow, and hickory. The understory is blue maidencane, creeping bluestem, waxmyrtle, Florida paspalum, brackenfern, panicum, poison ivy, greenbrier, smartweed, sedge, and clusters of sawpalmetto and other water tolerant plants.

In its native state, this soil is not suited to cultivated crops, citrus trees, or improved pasture because of the hazard of flooding. If the hazard of flooding can be overcome, this soil is suitable for special crops. A water control system is needed to remove excess water in wet seasons and to provide water for subsurface irrigation in dry seasons. Seedbed preparation should include bedding of the rows. Fertilizer and lime should be supplied according to the needs of the crops.

This soil is moderately suited to improved pasture grasses if excess water is removed. Pangolagrass, improved bahiagrass, and white clover grow well if they are well managed. A water control system is needed to remove excess surface water after heavy rains, and flooding should be controlled. Fertilizer and lime should be added on a regular basis, and grazing should be controlled to prevent weakening of the plants.

This soil is generally not suitable for pine trees.

This soil is in capability subclass VIw. It has not been assigned to a range site.

62—Kendrick fine sand, 5 to 8 percent slopes. This sloping, well drained soil is in the uplands. Individual areas are narrow and winding. Slopes are smooth to concave.

Typically, the surface layer is dark grayish brown fine sand about 6 inches thick. The subsurface layer is yellowish brown fine sand about 21 inches thick. The subsoil extends to a depth of 72 inches. It is yellowish brown fine sandy loam in the upper 8 inches and yellowish brown sandy clay loam in the next 29 inches. The lower 8 inches of the subsoil is brownish yellow sandy clay loam. Below 72 inches, to a depth of 80 inches or more, is mottled pale brown, reddish yellow, and pink sandy clay loam that has common lenses of sand.

Included with this soil in mapping are similar soils that have over 5 percent plinthite and similar soils that are on slopes of 0 to 5 percent or 8 to 10 percent. Also included are small areas of Arredondo and Lochloosa soils. The included soils make up about 20 percent of the map unit.

The water table is below a depth of 72 inches. The available water capacity is low in the surface and subsurface layers and is medium in the subsoil. The natural fertility is medium. Permeability is rapid above the subsoil and moderate in the subsoil.

The natural vegetation is a forest of longleaf pine, loblolly pine, slash pine, magnolia, dogwood, laurel, live oak, and water oak with an understory of bluestem species, indiangrass, hairy panicum, and annual forbs.

This soil is severely limited for cultivated crops because of the slope. A variety of crops are moderately suited to this soil if good management practices are used. Crops such as corn and peanuts are only moderately suited, but watermelons are well suited. Erosion control measures that are needed include contour stripcropping and a crop rotation system that keeps close-growing, soil-improving crops on the soil at least two-thirds of the time.

This soil is well suited to citrus trees in places that are relatively free from freezing temperatures. Tree rows should be laid out on the contour, and close-growing vegetation should be maintained between the trees to minimize erosion. Citrus fruit can normally be grown without irrigation. Irrigation is generally feasible where water is readily available, but the irrigation system should be designed and operated to avoid runoff and erosion.

This soil is well suited to improved pasture grasses if deep-rooting grasses such as Coastal bermudagrass, pangolagrass, and bahiagrass are planted. Fertilization, occasional liming, and controlled grazing are needed to maintain highest yields and good ground cover.

The potential of this soil for pine tree production is high. Moderate seedling mortality, equipment limitations, and plant competition are the main management concerns. Slash pine and loblolly pine are the best species to plant.

This soil is in capability subclass IIIe. It has not been assigned to a range site.

63—Delray mucky fine sand. This very poorly drained, nearly level soil is in depressions in the flatwoods. Individual areas are irregular in shape and commonly surround a slightly elevated area of better drained soil. Slopes range from 0 to 2 percent.

Typically, the surface layer is black. It is mucky fine sand in the upper 8 inches and fine sand in the lower 8 inches. The subsurface layer is fine sand about 32 inches thick. It is grayish brown in the upper 5 inches, light brownish gray in the next 22 inches, and grayish brown in the lower 5 inches. The subsoil is grayish brown fine sandy loam in the upper 3 inches. It is grayish brown sandy clay loam in the next 15 inches and greenish gray sandy clay loam between depths of 66 and 75 inches. Below this, to a depth of 80 inches or more, is grayish brown sandy clay loam. A thin layer of muck and litter commonly is on the surface.

Included with this soil in mapping are similar soils that have organic staining in the subsurface layer. Also included are small areas of Zephyr and Anclote soils. The included soils make up about 15 percent of the map unit.

Most areas of the Delray soil are ponded for 6 months or more in most years. The available water capacity is high in the surface layer, medium in the subsoil, and low in the subsurface layer. Permeability is rapid in the surface and subsurface layers and moderate to moderately rapid in the subsoil. Natural fertility is medium.

The natural vegetation is bay, cypress, sweetgum, pond pine, water oak, cattails, and in places, dense stands of maidencane and sawgrass.

In an unaltered natural condition, this soil is not suited to crops, citrus, trees, or improved pasture grasses. The water table, which is above the surface much of the year, severely restricts plant growth. Establishing an adequate water control system is difficult because in most locations suitable outlets are not available. However, if a system can be installed, this soil can be made suitable for production of improved pasture grasses that tolerate wetness.

The potential for pine tree production on this soil is moderately high, but a water control system designed to remove excess surface water is needed before trees can be planted. Equipment limitations and seedling mortality are the main management concerns. Slash pine is the best species to plant.

This soil is in capability subclass VIIw and in the Fresh Marsh range site.

64—Nobleton fine sand, 0 to 5 percent slopes. This nearly level to gently sloping, somewhat poorly drained soil is on the uplands. Individual areas are irregular in shape. Slopes are smooth to concave.

Typically, the surface layer is very dark grayish brown fine sand about 5 inches thick. The subsurface layer is about 24 inches thick. It is yellowish brown fine sand in the upper 12 inches and pale brown fine sand in the lower 12 inches. The subsoil is pale brown sandy clay loam in the upper 7 inches and mottled yellowish red, strong brown, yellowish brown, and gray sandy clay in the next 11 inches. Below this, to a depth of 80 inches or more, is light gray sandy clay loam.

Included with this soil in mapping are small areas of Blichton, Kendrick, Lochloosa, Millhopper, and Sparr soils. The included soils make up about 12 percent of the map unit.

This soil has a perched water table at a depth of 20 to 40 inches for 1 to 4 months during the summer rainy season in most years. Permeability is rapid in the surface and subsurface layers and is moderately slow in the subsoil. The available water capacity is low in the surface and subsurface layers and is medium to high in the subsoil.

The natural vegetation is a forest of live oak, laurel oak, water oak, slash pine, longleaf pine, hickory, magnolia, and sweetgum. The understory vegetation is waxmyrtle, briers, and native grasses, including bluestem, pineland threeawn, toothachegrass, panicum, and lopsided indiangrass.

This soil is well suited to cultivated crops if good management practices are used. A water control system is needed to remove excess water. Good management includes the use of a crop rotation that keeps close-growing crops on the soil at least half of the time. Cover crops and soil-improving crops should be plowed under. Seedbed preparation should include bedding of the rows and the addition of fertilizer and lime according to the needs of the crops.

This soil is moderately suited to citrus trees if wetness is properly controlled. The trees should be planted on beds for best results. Trees should not be planted in areas that are subject to freezing temperatures.

The soil is well suited to improved pasture grasses. Bahiagrasses and white clover grow well if properly managed. Water control measures are needed to remove excess surface water after heavy rains. Fertilizer and lime should be applied on a regular basis, and grazing should be controlled to maintain plant vigor.

This soil has high potential for pine tree production. There are no significant management concerns. Slash pine is the best species to plant.

This soil is in capability subclass IIw. It has not been assigned to a range site.

65—Gainesville loamy fine sand, 0 to 5 percent slopes. This well drained, nearly level to gently sloping soil is along ridgetops and low hillsides on the uplands. Slopes are smooth to concave.

Typically, the surface layer is very dark grayish brown loamy fine sand about 8 inches thick. Below that, to a depth of 80 inches or more, is loamy fine sand. It is dark brown in the upper 21 inches and yellowish red in the lower part.

Included with this soil in mapping are small areas of a similar soil that differs by having a dark-colored surface layer thicker than 10 inches. Small areas of Arredondo, Orlando, and Lake soils are also included. The included soils make up less than 15 percent of the map unit.

The available water capacity is low in all layers of this soil. Permeability is rapid throughout. Natural fertility is low, and fertilization raises the fertility to a moderate level.

This soil is severely limited for cultivated crops because of the sandy texture. Droughtiness and rapid leaching of applied plant nutrients reduce the variety and potential yields of crops that can be grown. Intensive soil management practices that are required if cultivated crops are grown include the use of a rotation system that keeps close-growing crops on the surface at least two-thirds of the time. Soil-improving crops should be grown, and crop residue should be left on the ground or plowed under. Lime and fertilizer should be applied on a regular basis. Irrigation of a few high-value crops is generally feasible where irrigation water is readily available.

This soil is well suited to citrus trees in locations that are relatively free from freezing temperatures. A ground cover of close-growing plants is needed between the trees to protect the soil from blowing. Good yields of citrus can be obtained in most years without irrigation. Where irrigation water is readily available, irrigation is generally feasible.

This soil is well suited to pasture. Deep-rooting plants such as Coastal bermudagrass and bahiagrasses generally grow well if the pasture is well fertilized and limed. Yields are limited by drought in prolonged dry seasons. Grazing should be controlled for best yields.

This soil has moderately high potential for growing pine trees. The main management concerns are equipment limitations, seedling mortality, and plant competition. Slash pine is better suited than other species.

This soil is in capability subclass IIIs and in the Longleaf Pines-Turkey Oak Hills range site.

66—Micanopy fine sand, 2 to 5 percent slopes. This gently sloping, somewhat poorly drained soil is on the uplands. Slopes are smooth to concave.

Typically, the surface layer is very dark gray fine sand 6 inches thick. The subsurface layer is brown fine sand 3 inches thick. The subsoil is mottled brown sandy clay loam to a depth of 15 inches and gray clay to a depth of 44 inches. Below this, to a depth of 69 inches, is gray sandy clay loam. Below this, to a depth of 89 inches, is mixed gray and grayish brown sandy clay loam.

Included with this soil in mapping are similar soils that have more than 5 percent plinthite in the subsoil. Also included are small areas of Blichton, Flemington Variant, Kendrick, and Nobleton soils. The included soils make up about 12 percent of the map unit.

This soil has a perched water table at a depth of 18 to 30 inches for 1 to 3 months during most years. In drier periods, the water table recedes to a depth of more than 60 inches. The available water capacity is low in the surface and subsurface layers and is medium in the subsoil. Natural fertility is medium. Permeability is rapid in the surface and subsurface layers and is moderate to slow in the subsoil.

The natural vegetation is loblolly pine, slash pine, longleaf pine, magnolia, hickory, dogwood, laurel oak, live oak, and water oak and an understory of creeping bluestem, chalky bluestem, indiangrass, toothachegrass, pineland threeawn, sawpalmetto, gallberry, waxmyrtle, and numerous annual forbs.

This soil is limited for cultivated crops because of wetness. It is poorly suited to cultivated crops if adequate drainage is not available, but it is well suited to some cultivated crops if a good water control system is used. Tile drains or open ditches are needed to provide adequate drainage in wet seasons. A crop rotation system that keeps cover crops on the land at least half the time is needed. Soil-improving cover crops and all crop residue should be left on the soil or plowed under. For best yields, good seedbed preparation and the addition of fertilizer and lime are required.

In places that are protected from freezing temperatures, this soil can be made moderately suitable for citrus trees by the provision of a good drainage system. Ditches or tile drains are needed to intercept seepage water from higher elevations and to remove excess internal water. The trees should be planted on beds. A cover of vegetation should be maintained between the trees to protect the soil from blowing. Fertilizer and lime are needed for best yields.

This soil is well suited to use as pasture. Grasses such as Coastal bermudagrass and bahiagrasses grow well if well managed. White clover and other legumes are moderately suited. For best yields, fertilizer and lime should be applied and grazing should be carefully controlled.

This soil has high potential productivity and no serious management problems for pine trees. Slash pine is the most productive species to plant.

This soil is in capability subclass IIw. It has not been assigned to a range site.

67—Kanapaha fine sand, 0 to 5 percent slopes. This nearly level to gently sloping, poorly drained soil is in low positions on uplands. Slopes are smooth to concave.

Typically, the surface layer is very dark gray fine sand 6 inches thick. The subsurface layer is fine sand about 66 inches thick. It is light brownish gray in the upper 7 inches, light gray in the next 32 inches, and white in the lower 27 inches. The subsoil extends below a depth of 80 inches. It is light brownish gray fine sandy loam.

Included with this soil in mapping are soils that are similar but differ by having a brownish stained subsurface layer or more than 6 percent plinthite in the subsoil. Also included are small areas of Blichton, Nobleton, and Sparr soils. Included soils make up less than 15 percent of any mapped area.

In most years, under natural conditions, this soil has a water table at a depth of less than 10 inches for 1 to 3 months and between depths of 10 and 40 inches for 3 to 4 months. In drier seasons, the water table recedes to a depth of more than 40 inches. The available water capacity is low in the surface and subsurface layers and is medium in the subsoil. Natural fertility is low. Permeability is rapid in the surface and subsurface layers and is moderately slow in the subsoil.

The natural vegetation is a forest of oak, sweetgum, maple, magnolia, hickory, slash pine, longleaf pine, loblolly pine, and an understory of several bluestem species, longleaf uniola, hairy panicum, several threeawn species, and numerous forbs. In small, slightly depressional areas the vegetation consists of a moderate stand of maidencane with a few scattered oak and scattered small clumps of sawpalmetto.

This soil is very severely limited for cultivated crops because of wetness and the thick sandy layer. The number of crops that can be grown on this soil is limited unless very intensive management practices are followed. If good water control measures and soil-improving measures are used, this soil can be made suitable for a number of vegetable crops. A water control system is needed to remove excess water in wet seasons and to provide water for subsurface irrigation in dry seasons. Row crops should be rotated with close-growing, soil-improving crops; and the soil-improving crops should be on the land three-fourths of the time. Crop residue and soil-improving crops should be plowed under. Seedbed preparation should include bedding of the rows. Fertilizer and lime should be added according to the needs of the crops.

This soil is poorly suited to citrus trees unless very intensive management is used. Those areas that are relatively free from freezing temperatures are suitable for citrus, but only after a carefully designed water control system has been installed. The water control system should maintain the water table below a depth of 4 feet. The trees should be planted on beds, and a plant cover should be maintained between the trees. Fertilizer and lime should be applied on a regular basis.

The soil is well suited to pasture. Pangolagrass, improved bahiagrasses, and white clover grow well if they are well managed. Water control measures are needed to remove excess surface water after heavy rains. Fertilizer and lime should be applied on a regular basis, and grazing should be controlled to prevent overgrazing and weakening of the plants.

This soil has moderately high potential for pine tree production. The major management concerns are mobility of equipment when the soil is wet and competition by undesirable plants. Seedling mortality is high. A simple water control system should be installed to remove excess surface water. Slash pine is better suited than other tree species.

This soil is in capability subclass IVw. It has not been assigned to a range site.

68—Lake fine sand, 5 to 8 percent slopes. This sloping, excessively drained soil is on upland hillsides. Individual areas are irregular in shape. Slopes are smooth to concave.

Typically, the surface layer is dark grayish brown fine sand about 7 inches thick. Beneath the surface layer, layers of fine sand extend to a depth of more than 80 inches. This sand is yellowish brown in the upper 14 inches. It changes gradually to strong brown at a depth of 21 inches and then becomes reddish yellow from a depth of 32 to 80 inches.

Included with this soil in mapping are small areas of Lake soils that have slope of less than 5 percent or more than 8 percent. Also included are small areas of Orlando soils that have slope ranging from 5 to 8 percent. The included soils make up less than 15 percent of the map unit.

Permeability is rapid throughout the Lake soil. The water table is below a depth of 120 inches. The available water capacity is very low in all layers. Rainfall is absorbed in protected areas and there is little runoff. This soil is low in both natural fertility and organic matter content.

The native vegetation consists of bluejack oak, blackjack oak, turkey oak, live oak, scattered longleaf pine, and an understory of a few scattered sawpalmetto, pineland threeawn, bluestem, and paspalum grasses.

This soil is not suitable for cultivated crops because of slope, deep sand, and the hazard of erosion in unprotected areas (fig. 13). Droughtiness and a rapid leaching of applied plant nutrients restrict both the variety and potential yield of crops that can be grown on this soil. Exposed soil areas such as the spaces between crop rows are subject to erosion in the event of heavy rainfall or if overhead irrigation is used.

The soil is suitable for citrus trees in areas that are relatively free from freezing temperatures. A ground cover of close-growing plants is needed between the trees to protect the soil from blowing and washing. Installation of a well planned irrigation system helps maintain optimum moisture conditions and insure best yields. Slope and the hazard of erosion must be considered in planning the grove layout and the irrigation system.

This soil is moderately suitable for use as pasture. Deep-rooting plants such as Coastal bermudagrass and bahiagrasses are suited, but yields are reduced by periodic drought. Fertilizer and lime are needed on a

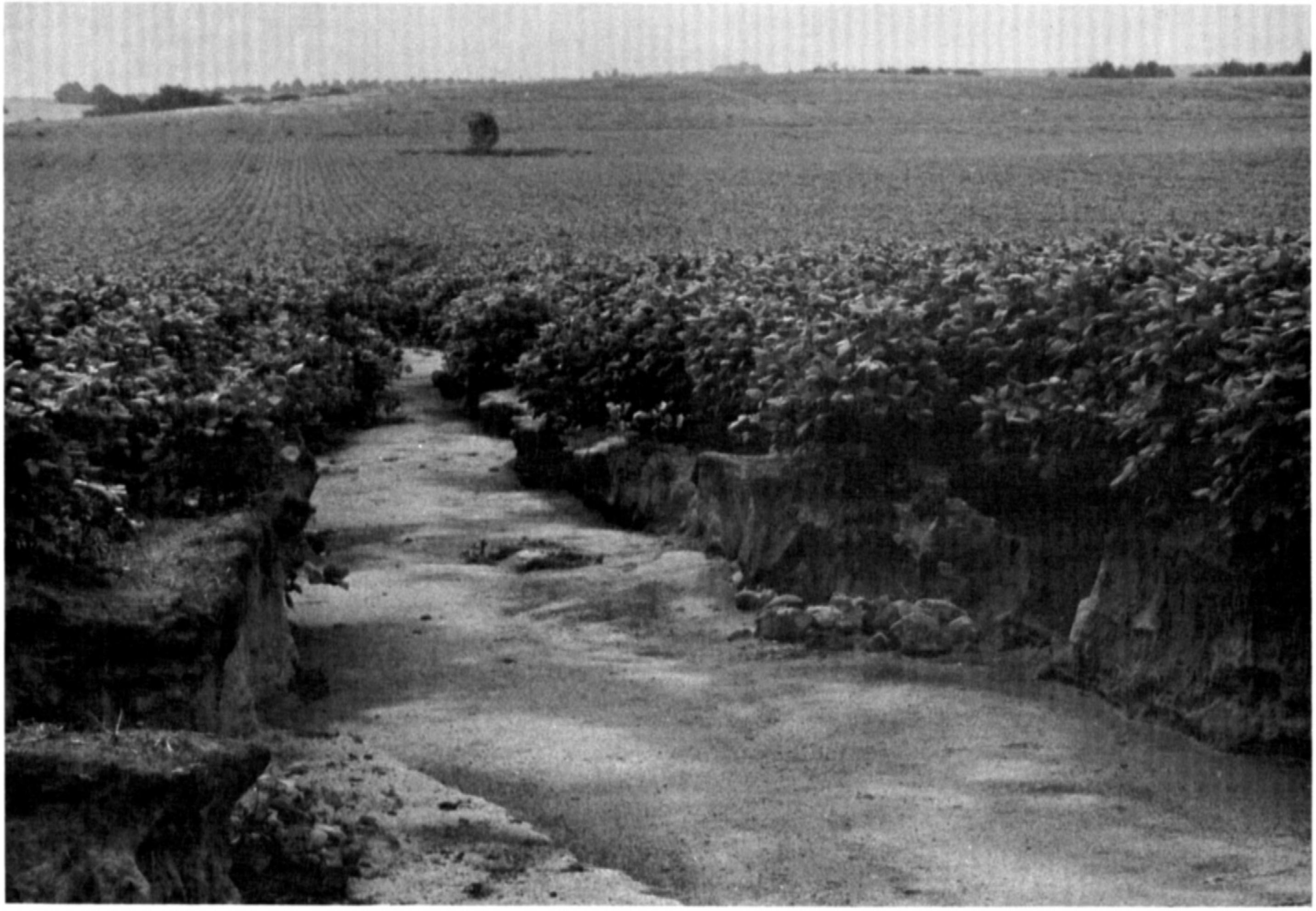


Figure 13.—This gully has formed in a soybean field on Lake fine sand, 5 to 8 percent slopes. It was caused by uncontrolled runoff from a higher elevation.

regular basis. Grazing should be greatly restricted to maintain highest yields and good ground cover.

The soil has moderately high potential for the production of pine trees. The main management concerns are the erosion hazard, limitations to equipment usage, seedling mortality, and competition from undesirable plants. Slash pine is the best species to plant.

This soil is in capability subclass VIs and in the Longleaf Pine-Turkey Oak Hills range site.

69—Millhopper fine sand, 0 to 5 percent slopes. This nearly level to gently sloping, moderately well drained soil is on uplands. Individual areas are irregular in shape. Slopes are smooth to concave.

Typically, the surface layer is fine sand 7 inches thick. It is dark gray in the upper 3 inches and grayish brown below. The subsurface layer is fine sand and extends to a depth of about 59 inches. It is very pale brown to a depth of 42 inches and then changes to light yellowish brown. Below this, and extending to a depth of 80 inches or more, is the subsoil. It is yellowish brown fine sandy loam in the upper 5 inches and gray sandy clay loam below.

Included with this soil in mapping are similar soils on similar landscape positions. They differ slightly by containing more very fine sand in the surface and subsurface layers. Small areas of these soils are in several parts of the county, but are concentrated in the north-central part. Also included in mapping are small areas of Arredondo, Candler, Kendrick, Nobleton, Sparr, and Tavares soils. The included soils make up about 15 percent of the map unit.

In an unaltered state, this soil has a water table perched above the loamy horizon. The water table is at a depth of 40 to 60 inches for 1 to 4 months and at a depth of 60 to 72 inches for 2 to 4 months in most years. In very wet years, the water table may be at a depth of 30 to 40 inches for a cumulative period of 1 to 3 weeks. The available water capacity is low in the surface and subsurface layers and is medium in the subsoil. Natural fertility is low. Permeability is rapid in the surface and subsurface layers and is moderate in the subsoil.

The native vegetation is live oak, laurel oak, water oak, sweetgum, hickory, slash pine, and longleaf pine. The understory is lopsided indiangrass, hairy panicum, low panicum, greenbrier, hawthorn, persimmon, fringeleaf paspalum, chalky bluestem, creeping bluestem, and pineland threeawn.

This soil is severely limited for cultivated crops because of the thick sandy layers. Intensive soil management practices are required to produce cultivated crops. Droughtiness and rapid leaching of plant nutrients are the principal limitations. Row crops should be planted on the contour in strips alternating with strips of close-growing crops. A crop rotation system that keeps the close-growing crops on the soil at least three-fourths of the time should be used. Soil-improving crops and all crop residue should be left on the ground or plowed under. Only a few crops produce good yields without irrigation. Irrigation is generally feasible where irrigation water is readily available.

This soil is suitable for citrus trees in areas that do not have frequent freezing temperatures. A ground cover of close-growing plants is needed between the trees to protect the soil from blowing or washing. Good yields of oranges and grapefruit can be obtained without irrigation in some years, but a well designed irrigation system, which maintains optimum moisture conditions, assures the best yields.

This soil is moderately suited to pasture and hay crops. Deep-rooting plants such as Coastal bermudagrass and bahiagrasses are well suited, but yields are reduced by periodic drought. Fertilizer and lime should be applied on a regular basis. Grazing should be controlled to maintain good ground cover and highest yields.

The potential productivity of slash pine and longleaf pine on this soil is moderately high. Restrictions on equipment use, seedling mortality, and plant competition are the main limitations. Slash pine is the best species to plant.

This soil is in capability subclass IIIs. It has not been assigned to a range site.

70—Placid fine sand. This nearly level, very poorly drained soil is at the base of sloping parts of the landscape and along narrow, slightly depressional, short drainageways. Individual areas of this soil are irregular in shape. Slopes are smooth to convex and less than 2 percent.

Typically, the surface layer consists of a layer of black fine sand 9 inches thick over a layer of very dark grayish brown fine sand 9 inches thick. Below this is fine sand. It is dark grayish brown between depths of 18 and 31 inches, grayish brown to a depth of 63 inches, and then gray to a depth of more than 80 inches.

Included with this soil in mapping are small areas of soils that have up to 25 inches of muck on the surface. These soils are in the lowest part of an area, have water standing above the surface during wet seasons, and retain a water table near the surface for longer periods. Also included are Basinger soils and other similar soils that have a thinner dark surface layer. These soils commonly are at the edge of an area and have the greatest fluctuation in depth to the water table. The proportion of included soils varies widely between areas, but is commonly less than 30 percent.

The water table is at a depth of less than 10 inches for a cumulative period of 6 months in most years. It recedes to a depth of 60 inches or more during extended dry periods. In most years, the lowest parts of an area have water above the surface during wet seasons. Infrequently, water covers most of an area during periods when extended heavy rainfall saturates the soil and impedes drainage. The available water capacity is high in the surface and subsurface layers and is low below. Permeability is rapid.

Most areas of this soil have been cleared. A few areas are in natural vegetation, which is pond pine, bay, scattered cypress, gum, and coarse, water-tolerant grasses. Wetter places commonly have pickerelweed, sawgrass, and wild shrubs.

This soil is not suitable for cultivated crops unless it is drained. If water is controlled, this soil can be made well suited to many locally important crops. A well designed and maintained water control system should remove excess water rapidly during heavy rains. Other important soil management practices include good seedbed preparation, crop rotation, and regular application of fertilizer. Cover crops should be rotated with row crops and should be on the land two-thirds of the time. All crop residue and cover crops should be plowed under.

This soil is not suitable for citrus trees unless it has been drained. If intensive water control measures are used, areas that are not subject to freeze damage are moderately suitable for citrus. The trees should be planted on beds to help increase the effective depth to the water table, and close-growing vegetation should be maintained between the trees. Fertilizer is needed on a regular basis.

The soil is too wet for most improved pasture grasses and legumes. If water is adequately controlled, this soil is well suited to bahiagrasses and clover. Simple drainage measures are needed to remove excess surface water. The plants grow well if the soil is properly fertilized and limed. Grazing should be controlled for best yields.

This soil has high potential for pine tree production, but installation of a water control system is necessary before the potential can be realized. Equipment limitations, seedling mortality, and plant competition are the main management concerns. Slash pine is the best species to plant.

This soil is in capability subclass IIIw and in the Maidencane Pond range site.

71—Anclote-Tavares-Pomello association, flooded. This association consists of very poorly drained and moderately well drained soils that occur in a regular and repeating pattern along rivers and streams. The landscape consists of a flood plain and low ridges. The nearly level to gently sloping Tavares and Pomello soils are on low ridges about 50 to 100 feet wide and on broader, irregularly shaped areas. The nearly level Anclote soils are in the low swampy areas near the river channel and on the narrow flood channels and side streams that dissect the landscape. The areas are generally long and narrow and mostly adjacent to the Withlacoochee River, but some areas connected by flood channels extend inland from the river. Individual areas of each soil range from about 5 to 500 acres. The largest areas are the Anclote soils.

The very poorly drained Anclote soils make up about 45 percent of the association. Typically, the surface layer is black fine sand about 18 inches thick. Below the surface layer and extending to a depth of 42 inches is dark grayish brown fine sand that has common black mottles. Below this is gray fine sand that extends to a depth of 80 inches or more.

In the Anclote soils, permeability is rapid throughout. The available water capacity is medium in the surface layer and low in the other layers. Natural fertility and the organic matter content of the surface layer are high. In most years, under natural conditions, the water table is at or near the surface for 3 to 6 months. The soil is frequently flooded in most years, commonly near the end of the rainy season. Some areas are flooded every year, and some areas are flooded about once every 2 years. The depth of the floodwater depends largely on landscape position and may be 6 feet or more in places. The flooding lasts about 2 to 4 months.

The moderately well drained Tavares soils make up about 20 percent of the association. Typically, the surface layer is very dark grayish brown fine sand about 6 inches thick. The next layer, to a depth of about 60 inches, is pale brown fine sand. Below that is white fine sand that extends to a depth of 80 inches or more.

In the Tavares soils, permeability is very rapid throughout and the available water capacity is very low. The natural fertility and organic matter content are low. The water table is at a depth of 40 to 60 inches for 6 months or more during most years, but recedes to a depth of more than 80 inches during droughts. In some areas of these soils, the water table rises to a depth of about 20 inches for a few days. The soils are occasionally flooded for periods of about 7 days to 1 month. On the average, flooding occurs about once every 8 years, but areas may flood more or less frequently, depending on rainfall and runoff within the watershed. Floodwater may reach a depth of 4 feet or more on this soil.

The moderately well drained Pomello soils make up about 20 percent of the association. Typically, the surface layer is black fine sand about 2 inches thick. The subsurface layer is white fine sand about 30 inches thick. The subsoil is dark reddish brown fine sand in the upper 4 inches and yellowish brown fine sand in the lower 6 inches. The substratum is light brownish gray fine sand to a depth of 80 inches or more.

In the Pomello soils, permeability is very rapid in the surface and subsurface layers, moderately rapid in the subsoil, and rapid in the substratum. Available water capacity is very low in the surface layer, the subsurface layer, and the substratum and medium in the subsoil. The natural fertility and organic matter content are low. In most years, the water table is at a depth of 24 to 40 inches for 1 to 4 months during the rainy season. It recedes to a depth of below 40 inches during dry periods. The soils are occasionally flooded. Flooding of the Pomello soils is similar to that of the Tavares soils.

Soils of minor extent make up about 15 percent of the association. Some of the minor soils are frequently flooded, and some are occasionally flooded.

Most of this association is in natural vegetation. The frequently flooded parts have water-tolerant vegetation of cypress, sweetgum, maple, and bay trees with an understory of myrtle, Sagittaria species, spatterdock, Junkus species, sedge, maidencane, and annual weeds. The trees show high flood levels, and their lower branches have been killed by the flooding. The occasionally flooded soils have a variable vegetation, which shows the influence of flooding. On the most elevated areas are a few very scattered longleaf pine, turkey oak, and live oak trees, with an understory of sawpalmetto, pineland threeawn, and various perennial grasses and herbs. The sawpalmetto form a dense growth, which sharply defines the usual flood level on these soils. Between this flood level and the areas of frequently flooded soils, only water-tolerant species survive the flooding. These are established ash, gum, and swamp maple trees that have an undergrowth of myrtle and maidencane clumps. Tree seedlings and invader plants become established between floods but are killed by the flooding.

Under natural conditions, the Anclote soils are not suitable for growing cultivated crops and citrus trees. The high water table and the frequent flooding severely restrict crop growth. Adequate water control systems are difficult to install because in most places suitable outlets are not available. Also, measures must be taken to protect the area from the threat of frequent flooding. In those areas where a water control system can be installed, these soils have medium suitability for good quality pasture.

Tavares soils are severely limited for cultivated crops because of droughtiness and flooding. Intensive soil management practices are needed if these soils are cultivated. Crops should be planted in alternating strips with close-growing cover crops. Tavares soils are not suitable for citrus trees because of flooding. Management practices suitable for Tavares soils include plowing under soil-improving crops and all other crop residue and adding fertilizer and lime. Irrigation is necessary for the production of some crops. These soils have suitability for pasture and hay crops. Deep-rooting plants such as Coastal bermudagrass and bahiagrass are well suited, but periodic droughts reduce yields. Fertilizer and lime should be applied on a regular basis. Grazing should be controlled for best yields.

Pomello soils are not suitable for most commonly cultivated crops. They are only fairly suitable for improved pasture grasses, even if good management practices are used. Bahiagrasses are better suited than other grasses, and clovers are not suited to these soils. The major limitation is droughtiness, except during the wet season. Fertilizer and lime should be applied on a regular basis. Grazing should be well controlled to maintain highest yields and good ground cover. Pomello soils are not suitable for citrus trees because of flooding.

Anclote soils have high potential, Tavares soils have moderately high potential, and Pomello soils have a moderate potential for growing pine trees. On Anclote soils, a water control system is needed to remove excess water. The frequency of flooding may make such a system impractical. The main management concerns are limitations on equipment usage and seedling mortality. Slash pine is the best tree to plant.

Anclote soils are in capability subclass VIw, Tavares soils are in subclass IIIs, and Pomello soils are in subclass VIs. The soils in this association have not been assigned to a range site.

72—Orlando fine sand, 0 to 5 percent slopes. This well drained, nearly level to gently sloping soil is on the uplands.

Typically, the surface layer is very dark gray and very dark grayish brown fine sand about 21 inches thick. Below the surface layer is a layer of mixed dark yellowish brown, dark brown, and dark grayish brown fine sand 10 inches thick. Below this are layers of yellowish brown and strong brown fine sand, which extend to a depth of 80 inches or more.

Included with this soil in mapping are small areas of Lake and Gainesville soils. Also included in mapping are small areas of similar soils that have a dark surface layer less than 10 inches thick. The included soils make up less than 20 percent of the map unit.

The water table in this soil is at a depth of more than 72 inches. The available water capacity is low in the surface layer and very low in the other layers. Permeability is rapid throughout. Natural fertility is low. The organic matter content is moderate in the surface layer amd moderately low to low in the other layers.

The native vegetation is slash pine, longleaf pine, laurel oak, live oak, turkey oak, some dogwood, hickory, magnolia, and an understory of widely spaced sawpalmetto, pineland threeawn, and paspalum.

This soil is severely limited for cultivated crops because of the sandy texture. Intensive soil management practices are required if cultivated crops are grown. Droughtiness and rapid leaching of applied plant nutrients reduce the variety and potential yields of crops suited to this soil. A rotation system that keeps close-growing crops on the surface at least two-thirds of the time should be used. Soil-improving crops should be grown, and crop residue should be left on the ground or plowed under. Lime and fertilizer should be applied as needed on a regular basis. Irrigation of a few high-value crops is commonly feasible where irrigation water is readily available.

This soil is well suited to citrus trees in places that are relatively free from freezing temperatures. A ground cover of close-growing plants is needed between the trees to protect the soil from blowing. Good yields of citrus can be obtained in most years without irrigation. Where irrigation water is readily available, however, irrigation is generally feasible.

This soil is well suited to use as pasture. Deep-rooting plants such as Coastal bermudagrass and bahiagrasses normally grow well if the soil is well fertilized and limed. Yields are limited by drought in prolonged dry seasons. Control of grazing is needed for best yields.

This soil has moderately high potential for pine tree production. The main management concerns are equipment limitations, seedling mortality, and plant competition. Slash pine is better suited than other species.

This soil is in capability subclass IIIs and in the Longleaf Pine-Turkey Oak Hills range site.

73—Zolfo fine sand. This nearly level, somewhat poorly drained soil is on landscape positions that are slightly higher than adjacent flatwood areas. Slopes range from 0 to 2 percent.

Typically, the surface layer is gray fine sand about 3 inches thick. The subsurface layer consists of light brownish gray, pale brown, light gray, and white fine sand. The subsoil begins at a depth of 65 inches. It is dark reddish brown fine sand in the upper 15 inches. The lower part is black fine sand and extends to a depth of 80 inches or more.

Included with this soil in mapping are small areas of Adamsville, Immokalee, Tavares, and Pomello soils. These included soils make up less than 20 percent of any mapped area. Also included in mapping are very similar soils which have a less well developed subsoil. These very similar included soils may make up slightly more than 20 percent of the map unit, especially in the central and eastern parts of the survey area.

Permeability is very rapid in the surface and subsurface layers and is moderate in the subsoil. The seasonal high water table is at a depth of 24 to 40 inches for 2 to 6 months in most years. In some years, the water table may be at a depth of 10 to 24 inches for periods of up to 2 weeks. Commonly, the water table is at a depth of less than 60 inches for more than 9 months of the year. The available water capacity is low to very low in the surface and subsurface layers and is medium in the subsoil. Natural fertility is low, and the organic matter content is low to very low.

The native vegetation is slash pine, longleaf pine, laurel, bluejack oak, turkey oak, live oak, water oak, and an understory of sawpalmetto, pineland threeawn, broomsedge, chalky bluestem, and other perennial grasses.

This soil is severely limited for cultivated crops because of periodic wetness, which limits the root zone. For all but a very few suited crops, intensive water control measures are needed. These water control measures may involve installing a system to remove excess water in wet seasons and planting trees on beds to help increase the effective depth to the water table. An irrigation system is also needed to provide water during dry periods. Combining water control measures with good management makes this soil well suited to many kinds of flowers and vegetables. Good management includes crop rotations that keep a close-growing crop on the land at least two-thirds of the time and the use of soil-improving crops. Crop residue should be plowed under. Fertilizer and lime should be added according to the needs of the crop.

This soil is poorly suited to citrus trees unless water is controlled. By installing a system to remove excess water during wet periods and by planting trees on beds to help increase the effective depth to the water table, this soil can be made moderately suitable for citrus. Locations that are frequently subject to freezing temperatures should be avoided. Excess water should be removed rapidly and the water table maintained at about 4 feet. A cover of close-growing vegetation should be maintained between the trees to protect the soil from blowing in dry weather and from washing during heavy rains. Regular applications of fertilizer and lime are needed. For highest yields, the soil should be irrigated in seasons of low rainfall.

This soil is moderately suited to use as pasture. Pangolagrass and bahiagrass are well suited. A simple system to remove excess surface water in times of high rainfall is needed. Fertilizers and lime are needed on a regular basis. Grazing should be controlled for highest yields.

This soil has moderately high potential for pine tree production. The main management concerns are equipment limitations, seedling mortality, and plant competition. Slash pine is the most suitable species for planting.

This soil is in capability subclass IIIw and in the South Florida Flatwoods range site.

74—Candler Variant fine sand, 0 to 5 percent slopes. This nearly level to gently sloping, well drained soil is in the north-central part of the county. Areas are irregular in shape and commonly are extensive. Slopes are smooth to concave.

Typically, the surface layer is about 8 inches thick. It is gray fine sand in the upper 4 inches and dark grayish brown fine sand in the lower part. Below this is the subsurface layer, which extends to a depth of about 72 inches. It is yellowish brown fine sand to a depth of 23 inches and very pale brown fine sand below that depth. Below 72 inches, and extending to a depth of more than 80 inches, is white fine sand that has small discontinuous horizontal bands (lamellae) of brown loamy fine sand.

Included in mapping are small areas of Candler, Millhopper, and Tavares soils. The included soils, dominantly Millhopper soils, make up about 20 percent of the map unit.

The water table is below 72 inches. The available water capacity is low, and natural fertility is very low. Permeability is rapid in all horizons.

Most areas of this soil have been cleared. The native vegetation is bluejack oak, a few scattered turkey oak, post oak, live oak, longleaf pine, slash pine, and an understory of pineland threeawn, creeping bluestem, Florida paspalum, and other grasses and forbs.

This soil is very severely limited for cultivated crops because of the thick sandy layers. Intensive soil management practices are required to grow cultivated crops. Droughtiness and rapid leaching of plant nutrients reduce the variety and potential yields of suited crops. Row crops should be planted on the contour in strips alternating with close-growing cover crops. A crop rotation system that keeps the soil under close-growing crops at least three-fourths of the time should be used. Crop residue and soil-improving crops should be plowed under. Irrigation of the crops during periods of dry weather should be considered.

This soil is suitable for growing citrus trees if the site is relatively free of freezing temperatures. A ground cover of close-growing plants is needed between the trees to prevent soil blowing and water erosion. Irrigation during dry periods helps to establish good groves and assure the best yields from mature groves. Fertilization and liming are needed on a regular basis.

The soil is moderately suited to pasture and hay crops. Deep-rooting plants such as Coastal bermudagrass and bahiagrass can give good yields, even with periodic droughts, if a good management program has been followed. Plant vigor can be maintained by control of grazing and by applying fertilizer and lime on a regular basis.

This soil has moderately high potential for the commercial production of pine trees. Seedling mortality, equipment limitations, and plant competition are the main management concerns. Slash pine is the best species to plant.

This soil is in capability subclass IVs and in the Longleaf Pine-Turkey Oak Hills range site.

75—Beaches. Beaches are natural deposits of tide-washed, very rapidly permeable sand. They are along the edges of a few small islands in the Gulf of Mexico. Beaches are narrow, commonly less than 200 feet in width but ranging up to 300 feet. The seaward half has a uniform gentle slope and is flooded during normal daily high tides. The landward half consists predominantly of gentle slopes and areas of short, stronger slopes which may range up to 15 percent. This landward part is not flooded during normal high tides, but is frequently flooded during periods of storm tides. Tidal action and waves produce minor changes in beach shape and slope almost daily. Storm tides, high waves, and strong winds may produce radical changes through erosion and deposition of beach materials.

The material making up beaches is of a highly variable composition both over short surface distances and within the profile. This is a result of the frequent natural reworking and mixing that occurs. The most common type of soil in most areas is pale brown to light gray uncoated quartz sand. Mixed with this sand are varying amounts of sand-size or larger fragments of shells and unbroken shells. Most areas of beaches have this variable mixture of sand and shell to a depth of more than 80 inches.

Included with beaches in mapping are areas that are more densely vegetated than is typical for beaches. These included areas are adjacent to the landward portion of the beaches, but they are slightly more elevated and are not covered by water except during times of extremely high storm tides. They also consist of variable mixture of sand and shell fragments and commonly contain a layer stained with organic material about 10 inches below the surface. The vegetation on these included areas is mainly cabbage palm with an understory of various species of smilax. Also included with beaches are small areas of soils that have hard limestone rock within 80 inches of the surface and small areas of soils that have layers of organic or silty material in the profile.

When not covered by water, the beaches have a water table at a depth of 0 to 6 feet. The depth to the water table increases with distance from open water. Both the available water capacity and natural fertility are low, and the organic matter content is very low. When not impeded by a water table, permeability is rapid.

Most of the beaches are devoid of vegetation, but inland edges are sometimes very sparsely covered by railroad vine, scattered clumps of sea-oats, and seashore bermudagrass.

Beaches are not suitable for cultivation or use as woodland.

Beaches are in capability subclass VIIIw. They have not been assigned to a range site.

76—Bessle muck. This very poorly drained, nearly level organic soil is in mangrove swamps on islands in the Gulf of Mexico. It is mainly on the eastern side of the islands and is exposed to tidal flooding. Individual areas are usually narrow and long, conforming to the overall shape of the island. Slopes are less than 1 percent.

Typically, the surface layer is black muck about 35 inches thick. Below this is very dark brown sandy clay 8 inches thick. Below this, to a depth of more than 80 inches, is a layer of gray fine sand mixed with varying amounts of whole or fragmented shell.

Included with this soil in mapping are very similar soils that do not have a clay or sandy clay layer. Also included are similar soils that have hard rock within 60 inches of the surface. The included soils make up about 25 percent of the mapped area.

Normal daily tides flood much of the mapped area, and storm tides cover the mapped area totally. The available water capacity is very high in the organic surface layer, high in the clayey underlying layer, and low in the sandy underlying layer. Natural fertility is high. Permeability is slow to very slow in the clayey layer and rapid in the other layers.

All areas of this soil remain in natural vegetation, which consists of red and black mangrove and, in more sheltered locations, a few white mangrove. Scattered glasswort, bushy sea-oxeye, and scattered clumps of salt-tolerant grasses are also present.

This soil is not suitable for cultivation or for use as pasture or woodland.

This soil is in capability subclass VIIIw. It has not been assigned to a range site.

use and management of the soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavior characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreation facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

crops and pasture

John D. Griffin and John D. Lawrence, state conservation agronomists, Soil Conservation Service, assisted in preparing this section.

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under "Detailed soil map units." Specific information can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

Approximately 100,000 acres in Pasco County was used for crops and pasture in 1976. Of this, about 60,000 acres was used for pasture; 34,000 acres was used for citrus; and 2,500 acres was used for field crops, mainly small grain and soybeans. Nine hundred acres was used for specialty crops, mainly watermelons, vegetables, and nursery plants.

In Pasco County, about 1,981 acres, or less than one half percent of the county's acreage meets the soil requirements for prime farmland. This acreage is in map unit 66, Micanopy fine sand, 2 to 5 percent slopes (where adequately drained). Prime farmland, as defined by the U.S. Department of Agriculture, is the land that is best suited to producing food, feed, forage, fiber, and oilseed crops. It may now be in crops, pasture, woodland, or other land, but it may not be in urban and built-up land or water areas. It must either be used for producing food and fiber or be available for these uses. In Pasco County, much of this land is used for crops, mainly corn and soybeans.

The potential of the soils in the Pasco soil survey area for increased food production is good. About 70,000 acres of potentially good cropland is currently used as rangeland, about 50,000 acres is used as pasture, and about 20,000 acres is used as woodland. Conversion of this land to cropland would require intensive conservation measures to control water and to control soil blowing. In addition to the reserve capacity represented by this land, food production could be increased considerably by extending the latest cropland technology to all cropland in the county. This soil survey can greatly facilitate the application of such technology.

Erosion by water is a problem in citrus groves and on cropland and poorly managed pastureland in Pasco County. For example, erosion occurs on well drained Arredondo, Gainesville, and Kendrick soils, somewhat poorly drained Electra Variant, Lochloosa, Nobleton, and Sparr soils, and poorly drained Blichton soils if the slope is more than 2 percent; and it occurs on excessively drained Candler, Lake, and Paola soils if the slope is more than 5 percent. It is especially a problem on land planted to citrus.

Loss of soil from the surface layer through erosion is damaging for two reasons. First, productivity is reduced as topsoil is lost and part of the subsoil is incorporated into the plow layer. Second, the soil that is eroded enters streams as sediment. Control of erosion minimizes the pollution of streams by sediment and improves the quality of water for municipal use, for recreation, and for fish and wildlife.

Erosion control practices provide surface cover, reduce runoff, and increase infiltration. A cropping system that keeps vegetative cover on the soil for extended periods can hold soil erosion losses to amounts that will not reduce the productive capacity of the soils. On livestock farms, which require pasture and hay, the use of the legume and grass forage crops in the cropping system reduces erosion on erodible sloping land, improves tilth, and provides nitrogen for the following crop.

Minimizing tillage and leaving crop residue on the surface help to increase infiltration and reduce the hazards of runoff and erosion. These practices can be adapted to most soils in the survey area. No-tillage for soybeans and small grain is effective in reducing erosion on sloping land and can be adapted to most soils in the survey area.

In many areas, the soils are too sandy and the slopes are too short and irregular for contour tillage or terracing. Contour tillage can be adapted to new citrus plantings on sloping land. Stripcropping and the use of diversions reduce the length of slope and reduce runoff and erosion. They are more practical on deep, well drained soils that have regular slopes. Diversions and sod waterways reduce runoff and erosion and can be adapted to most sloping soils in the survey area.

Soil blowing, or wind erosion, is a major hazard on the sandy soils. Soil blowing can damage soils and tender crops in a few hours in open unprotected areas if winds are strong and the soil is dry and bare of vegetation and surface mulch. Maintaining vegetative cover and surface mulch minimizes soil blowing. Windbreaks of adapted trees and shrubs, such as slash pine, Southern redcedar, and Japanese privet, and strip crops of small grain are effective in reducing soil blowing and crop damage.

Information on the design of erosion control practices for each kind of soil is in the "Water and Wind Erosion Control Handbook for Florida," which is available in local offices of the Soil Conservation Service.

Soil drainage is a major management need on about one-half of the acreage used for crops and pasture in the survey area. Some soils are naturally so wet that the production of citrus and crops common to the area is generally not possible. These are the very poorly drained Anclote, Chobee, Delray, Placid, and Sellers soils and the poorly drained Basinger, Blichton, EauGallie, Palmetto, Felda, Flemington Variant, Immokalee, Kanapaha, Myakka, Ona, Paisley, Pineda, Pomona, Pompano, Smyrna, Vero, Wauchula, and Zephyr soils.

The somewhat poorly drained soils are so wet that, unless they are artificially drained, the wetness damages crops and citrus trees during most years. These soils are the Adamsville, Aripeka, Cassia, Electra Variant, Lochloosa, Micanopy, Narcoossee, Newnan, Nobleton, and Sparr soils. Wetness in these soils also damages pasture grasses in most years unless the soils are artificially drained.

The poorly drained and very poorly drained soils are so wet that pasture grasses common to the area cannot be grown without artificial drainage. These soils are the Anclote, Basinger, Blichton, Chobee, Delray, EauGallie, Felda, Flemington, Immokalee, Kanapaha, Myakka, Ona, Paisley, Palmetto, Pineda, Pomona, Pompano, Sellers, Smyrna, Vero, Wauchula, and Zephyr soils.

These poorly drained, somewhat poorly drained, and very poorly drained soils also have low available water capacity and are droughty during dry periods. Irrigation is necessary on these soils for intensive production of row crops, citrus, and pasture, and a combination of surface drainage and subsurface irrigation is needed for intensive crop and pasture production. The design of the surface drainage and subsurface irrigation systems varies according to the kind of soil and the crops and pasture grasses grown.

Because citrus trees have a deep taproot, they need considerable rooting depth. Surface and subsurface drainage and drip irrigation systems are needed for intensive citrus production on the somewhat poorly drained and poorly drained soils. The design of drainage systems and drip irrigation systems varies with the kind of soil and the citrus crops grown.

Organic soils oxidize and subside when the pore space is filled with air; therefore, special drainage and irrigation systems are needed on these soils to control the depth and period of drainage. Keeping the water table at the highest practical level for the crop, tilling during the growing season, and raising the water table to the surface during the off season minimize the oxidation and subsidence of organic soils.

Information on drainage and irrigation for each kind of soil is contained in the "Technical Guide," available in local offices of the Soil Conservation Service.

Soil fertility is naturally low in most soils in the survey area. Sandy soils have low fertility because they have relatively low amounts of organic matter and low cation exchange capacity. They also have low available water capacity. Most of the soils have a sandy surface layer and are light colored. The Aripeka, Jonesville, and Vero Variant soils have an acid surface and are underlain by calcareous limestone which ranges from neutral to moderately alkaline. The Gainesville, Sellers, and Pineda soils have a loamy surface texture. Many of the soils have a sandy surface texture and a loamy subsoil. In this category are the Aripeka, Arredondo, Blichton, Delray, EauGallie, Electra Variant, Felda, Jonesville, Kendrick, Lochloosa, Micanopy, Newnan, Nobleton, Paisley, Pomona, Sparr, Vero, and Wauchula soils. Some of the soils have sandy textures to 80 inches or more. These are the Adamsville, Anclote, Astatula, Basinger, Candler, Cassia, Gainesville, Immokalee, Lake, Myakka, Narcoosee, Ona, Orlando, Pomello, Paola, Pompano, Sellers, Smyrna, Tavares, and Zolfo soils. The Basinger, EauGallie, Immokalee, Myakka, Ona, Pomello, Smyrna, Vero, Wauchula, and Zolfo soils have an underlying layer of organic-stained material.

Most of the soils have a strongly acid to very strongly acid surface layer. If they have never been limed, they require applications of ground limestone to supply calcium and raise the pH level sufficiently for good growth of crops, citrus, and pasture. Levels of nitrogen, potash, and available phosphorus are naturally low in most of these soils. On all soils, additions of lime and fertilizer should be based on the results of soil tests, on the needs of the crops, and on the expected level of yields. The Cooperative Extension Service can help in determining the kinds and amounts of fertilizer and lime to apply to each crop.

Soil tilth is an important factor in the germination of seeds and the infiltration of water into the soil. Soils that have good tilth are granular and porous. Most of the soils in the survey area have a sandy or loamy sand surface layer that is light in color and low in organic matter content. The Anclote, Delray, Placid, Sellers, and Zephyr soils and the organic Okeelanta, Terra Ceia, Samsula, and Tomoka soils have a dark surface and high organic matter content. Intense rain on dry soils that are low in organic matter content causes the colloidal material to cement, forming a slight crust. This crust is slightly hard and slightly impervious to water when it is dry. Once the crust forms, it reduces infiltration and increases runoff. Regular additions of crop residue, manure, and other organic material can help to improve soil structure and to reduce crust formation.

In some fields, preparing a good seedbed and tilling the soil are difficult because of limestone boulders on the surface. In some areas of Jonesville, Paisley, and Aripeka soils, boulders may interfere with tillage operations.

Fall plowing is generally not a good practice on the soils of Pasco County. About 8,700 acres of the cropland consists of sloping soils that are subject to damaging water erosion if they are plowed in the fall. Also, most of the county's cropland soils are sandy and are subject to damage by soil blowing if they are plowed in fall.

Field crops suited to the soils and climate of the survey area include many that are not now commonly grown. Soybeans is the main row crop. The acreage planted to soybeans has increased in recent years. Acreages planted to grain sorghum, potatoes, soybeans, sugarcane, and sunflower can be increased if economic conditions are favorable. Rye is the most common close-growing crop. Wheat, oats, and triticale can be grown but are not at this time. Bahiagrass, hairy indigo, aeschynomane, and alyceclover could be harvested for seed as well as for forage.

Special crops grown commercially in the survey area are mainly citrus. A smaller acreage is used for watermelons, vegetables, and nursery plants. The acreage of potatoes, tomatoes, strawberries, squash, blueberries, grapes, and blackberries can be increased if economic conditions are favorable.

Deep soils that have good natural drainage are especially well suited to many vegetables and small fruits when irrigated. In the survey area, these soils are the Arredondo, Gainesville, Kendrick, Lake, Orlando, and Tavares soils. In addition, if surface drained and irrigated, about 70,000 acres of Adamsville, Blichton, Electra Variant, EauGallie, Flemington Variant, Immokalee, Lochloosa, Narcoosee, Nobleton, Paisley, Sparr, Vero, and Zolfo soils is well suited to vegetables and small fruits.

Soils in low-lying areas where frost is frequent and air drainage is poor generally are poorly suited to early vegetables, small fruits, and orchards.

Latest information and suggestions for growing special crops can be obtained from local offices of the Cooperative Extension Service and the Soil Conservation Service.

Pastures in the survey area are used to produce forage for beef and dairy cattle operations and a few horse farms. Beef cow-calf operations are the major livestock systems. Bahiagrass and improved bermudagrass are the main pasture plants grown in the survey area. Many soils are subsurface irrigated, and white clover is grown in combination with the grass for winter and spring grazing. Many cattlemen seed rye on cropland in fall for winter and spring grazing. Excess grass is harvested as hay for feeding cattle during the winter months.

The well drained and moderately well drained Arredondo, Candler Variant, Gainesville, Jonesville, Kendrick, Millhopper, Orlando, and Tavares soils are well suited to bahiagrass and improved bermudagrass. If properly managed, hairy indigo and alyceclover may be grown during summer and fall.

The excessively drained Astatula, Candler, and Lake soils are fairly well suited to bahiagrass. If properly managed, hairy indigo and alyceclover may be grown on these soils during the summer and fall. Growing these grasses will increase forage production and reduce the amount of nitrogen fertilizer needed.

The somewhat poorly drained Adamsville, Aripeka, Electra Variant, Lochloosa, Micanopy, Narcoosee, Newnan, Nobleton, Sparr, and Zolfo soils are well suited to bahiagrass and improved bermudagrass. Legumes such as sweet clover may be grown if these soils are adequately limed and fertilized and if good management practices are used.

With adequate surface drainage, the poorly drained and very poorly drained Anclote, Basinger, Blichton, Delray, EauGallie, Felda, Flemington Variant, Immokalee, Kanapaha, Myakka, Okeelanta, Terra Ceia, Ona, Paisley, Pineda, Pomona, Pompano, Samsula, Sellers, Tomoka, Vero, Wauchula, and Zephyr soils are well suited to bahiagrass and bermudagrass pastures. On soils having slope of less than 2 percent, subsurface irrigation increases the length of the growing season and the total amount of forage production. Legumes such as white clover are well suited to these soils if the soils are adequately limed and fertilized and if good management practices are used.

Pasture in many parts of the county is depleted by continuous excessive grazing. Yields from pasture can be increased by adding lime and fertilizer, by using legumes in the cropping sequence, by irrigating, and by other management practices.

Differences in pasture yields are related closely to the kind of soil. Proper management of pasture must be based on the relationship among soils, pasture plants, lime, fertilizer, and available moisture.

Latest information and suggestions for growing pastures can be obtained from local offices of the Cooperative Extension Service and the Soil Conservation Service.

yields per acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green-manure crops; and harvesting that insures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Soil Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils.

land capability classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor does it consider possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for woodland, and for engineering purposes.

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit. Only class and subclass are used in this survey. These levels are defined in the following paragraphs.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w, s,* or *c* because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation.

Capability units are soil groups within a subclass. The soils in a capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, IIe-4 or IIIe-6.

The acreage of soils in each capability class and subclass is shown in table 6. The capability classification of each map unit is given in the section "Detailed soil map units."

range and grazeable woodland

Clifford W. Carter, range conservationist, Soil Conservation Service, helped prepare this section.

Native grasses are a significant part of the overall, year-round supply of forage to livestock producers in Pasco County. This forage is readily available, it is economical, and it provides important roughage needed by cattle.

The dominant native forage species that grow on a soil are generally the most productive and the most suitable for livestock. They will maintain themselves as long as the environment does not change. The forage species are grouped into three categories according to their response to grazing—decreasers, increasers, and invaders.

Decreasers generally are the most palatable plants, and they decrease in abundance if the range is under continuous heavy grazing. Increasers are less palatable to livestock; they increase for a while under continuous heavy grazing but eventually decrease. A small number of invaders are native to the range. They have little value for forage; consequently, they tend to increase as other vegetation deteriorates.

Range condition is a measure of the range's current productivity in kinds and amounts of plants relative to its potential. Four condition classes are used to measure range condition.

In excellent condition, the range produces 76 to 100 percent of its potential; in good condition, 51 to 75 percent of its potential; in fair condition, 26 to 50 percent of its potential; and in poor condition, 0 to 25 percent of its potential. Only about 15 percent of the range in Pasco County is in excellent condition; about 65 percent is in fair or poor condition.

Table 7 shows, for those soils in the survey area that are used as rangeland or are suited to this use, the range site and the total production in favorable, normal, and unfavorable years. Explanation of the column headings in table 7 follows.

A range site is a distinctive kind of rangeland that produces a characteristic natural plant community that differs from natural plant communities on other range sites in kind, amount, and proportion of range plants. The relationship between soils and vegetation was established during this survey; thus, range sites generally can be determined directly from the soil map. Soil properties that affect moisture supply and plant nutrients have the greatest influence on the productivity of range plants. Soil reaction, salt content, and a seasonal high water table are also important.

Total production is the amount of vegetation that can be expected to grow annually on well-managed rangeland that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's growth of leaves, twigs, and fruits of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, normal, and unfavorable years. In a favorable year, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average, generally because of low available soil moisture.

Dry weight is the total annual yield per acre with the moisture removed from the vegetation through air drying.

Range management requires a knowledge of the kinds of soil and of the potential natural plant community. It also requires an evaluation of the present range condition. Range condition is determined by comparing the present plant community with the potential natural plant community on a particular range site. The more closely the existing community resembles the potential community, the better the range condition. Range condition is an ecological rating only. It does not have a specific meaning that pertains to the present plant community for a given use.

The objective in range management is to control grazing so that the plants growing on a site are about the same in kind and amount as the potential natural plant community for that site. Such management generally results in the optimum production of vegetation, conservation of water, and control of water erosion and soil blowing. Sometimes, however, a range condition somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

Grazeable woodland is forest that has an understory of native grasses, legumes, and forbs. The understory is an integral part of the forest plant community. The native plants can be grazed without significantly impairing other forest values. On such forestland, grazing is compatible with timber management if it is controlled or managed in such a manner that timber and forage resources are maintained or enhanced.

Understory vegetation consists of grasses, forbs, shrubs, and other plants used by livestock or by grazing or browsing wildlife. A well-managed wooded area can produce enough understory vegetation to supply food to large numbers of livestock and wildlife.

The amount of forage production varies according to the different kinds of grazeable woodland; the amount of shade cast by the canopy; the accumulation of fallen needles; the intensity of grazing; the amount of time grazing has gone on; and the number, size, spacing, and method of site preparation for tree plantings.

woodland management and productivity

Carl D. Defazio, forester, Soil Conservation Service, and Gerald W. Evans, county forester, Florida Division of Forestry, helped prepare this section.

Forests in Pasco County make up about 178,700 acres, or 37 percent of the total land area. Approximately 75 percent of this forest resource is in nonindustrial private ownership. These scattered private holdings are relatively small, averaging under 500 acres. Corporate lands account for nearly 40,000 acres, and the Withlacoochee State Forest accounts for 8,000 acres.

Gum and cypress, the predominant tree species in Pasco County, occur on such soils as Sellers and Zephyr. These species account for nearly 45 percent of the county's woodland resource. They occur in cypress "heads" or "domes" throughout the county, particularly in the southwestern part. Pond cypress, black gum, and sweetgum along with other wetland hardwoods such as water elm, pumpkin ash, red maple, and various oaks also occur along the Hillsborough and Withlacoochee Rivers in the eastern part of the county.

Slash pine occurs primarily in the northeastern corner of the county on flatwood soils such as EauGallie, Myakka, Pomona, and Vero. This species accounts for nearly 17,000 acres of the total woodland resource. Much of this acreage is in the Withlacoochee State Forest. This area is being intensively managed for timber, cattle, and wildlife production.

Longleaf pine and turkey oak predominate in the northwestern and north-central parts of the county. These species occur on the Astatula, Tavares, Candler, and Paola soils in the drier sandhills. These sandhill areas are rapidly being developed as residential areas, and production of forest products is declining.

Approximately 57 percent of the commercial forestland in the county is understocked and is not producing at capacity. This condition is due primarily to past harvesting practices of clearcutting and periodic burning without concern for tree reproduction. This situation is exemplified on small nonindustrial tracts throughout the county. Because of state and federal incentive programs and increased technical assistance in these areas, the situation is improving.

Markets are not plentiful but do exist for the wood of Pasco County. Mills for sawing cypress lumber are in Pasco and surrounding counties. Markets for pine sawtimber and pulpwood are also available.

More detailed information on woodland and woodland management can be obtained from the local offices of the Soil Conservation Service, the Florida Division of Forestry, and the Florida Cooperative Extension Service.

Table 8 can be used by woodland owners or forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed. The table lists the ordination (woodland suitability) symbol for each soil. Soils assigned the same ordination symbol require the same general management and have about the same potential productivity.

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *x* indicates stoniness or rockiness; *w*, excessive water in or on the soil; *t*, toxic substances in the soil; *d*, restricted root depth; *c*, clay in the upper part of the soil; *s*, sandy texture; *f*, high content of coarse fragments in the soil profile; and *r*, steep slopes. The letter *o* indicates that limitations or restrictions are insignificant. If a soil has more than one limitation, the priority is as follows: x, w, t, d, c, s, f, and r.

In table 8, *slight, moderate,* and *severe* indicate the degree of the major soil limitations to be considered in management.

Ratings of the *erosion hazard* indicate the risk of loss of soil in well managed woodland. The risk is *slight* if the expected soil loss is small, *moderate* if measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.

Ratings of *equipment limitation* reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in management or in equipment; and *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings indicate the degree to which the soil affects the mortality of tree seedlings. Plant competition is not considered in the ratings. The ratings apply to seedlings from good stock that are properly planted during a period of sufficient rainfall. A rating of *slight* indicates that the expected mortality is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

Ratings of *plant competition* indicate the degree to which undesirable plants are expected to invade where there are openings in the tree canopy. The invading plants compete with native plants or planted seedlings. A rating of *slight* indicates little or no competition from other plants; *moderate* indicates that plant competition is expected to hinder the development of a fully stocked stand of desirable trees; *severe* indicates that plant competition is expected to prevent the establishment of a desirable stand unless the site is intensively prepared, weeded, or otherwise managed to control undesirable plants.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index*. This index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index was determined at age 25 years for south Florida slash pine and at age 50 years for other species. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Trees to plant are those that are suited to the soils and to commercial wood production.

windbreaks and environmental plantings

Windbreaks protect livestock, buildings, and yards from wind. They also protect fruit trees and gardens, and they furnish habitat for wildlife. Several rows of low- and high-growing broadleaf and coniferous trees and shrubs provide the most protection.

Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil. Field windbreaks protect cropland and crops from wind and provide food and cover for wildlife.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To insure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from local offices of the Soil Conservation Service or the Cooperative Extension Service or from a nursery.

recreation

The soils of the survey area are rated in table 9 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewerlines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreation use by the duration and intensity of flooding and the season when flooding occurs. In planning recreation facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In table 9, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 9 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 12 and interpretations for dwellings without basements and for local roads and streets in table 11.

Camp areas require site preparation such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking, horseback riding, and bicycling should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

wildlife habitat

John F. Vance, biologist, Soil Conservation Service, helped prepare this section.

Pasco County has some extensive areas of good wildlife habitat. However, intensive urban development, particularly in the coastal areas, and the establishment of large areas of improved pasture and citrus have been detrimental to wildlife habitat in parts of the county. For example, bald eagle nests were once common along the coast, but in 1979, only two nesting pairs of this endangered species were present.

The northeastern corner of the county has good wildlife habitat and over 7,000 acres is in the Richloam Wildlife Management Area, a part of the Withlacoochee State Forest. However, the best areas of habitat generally are in the relatively undeveloped central parts of the county.

The primary game species are white-tailed deer, turkey, bobwhite quail, gray squirrel, and mourning dove. Other wildlife, both game and nongame, include fox squirrel, gray and red fox, snipe, woodcock, raccoon, opossum, bobcat, otter, skunk, armadillo, and a variety of songbirds, woodpeckers, wading birds, reptiles, and amphibians. A number of waterfowl species overwinter on the larger water bodies, and the wood duck and Florida mallard are year-round residents of the swamps and marshes.

Species that are listed as endangered or threatened include the eagle, the alligator, the Florida mouse, and the Florida gopher frog. A number of other threatened species can be found in Pasco County, and a detailed list with information on range and habitat may be obtained from the district conservationist.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 10, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are millet, cowpeas, sunflowers, and soybeans.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are ryegrass, bahiagrass, deer vetch, hairy indigo, and clover.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are pokeweed, mushrooms, beggarweed, partridgepea, ragweed, and low panicum.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, the available water capacity, and wetness. Examples of these plants are oak, sawpalmetto, gallberry, cabbage palm, elderberry, huckleberry, blackberry, and catbriers.

Coniferous plants furnish browse, seeds, and cones. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, cypress, and cedar.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, cattail, maidencane, rushes, and sedges.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The wildlife attracted to these areas include bobwhite quail, dove, sparrow hawk, meadowlark, field sparrow, cottontail, and cattle egret.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, towhee, owls, woodpeckers, squirrels, gray fox, raccoon, and deer.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, egrets, herons, kingfishers, alligators, and otter.

management of wildlife habitat

Wildlife habitat can thrive on disturbances such as controlled burning, grazing, chopping, cultivation, water level manipulation, and mowing if these practices are properly done. Each species of wildlife occupies a niche in a vegetative community; therefore, if management is for a particular species, an attempt is made to keep the vegetative community in the stage or stages that favor that species.

A primary factor in evaluating wildlife habitat is the plant diversity in an area. A wide range in vegetative type or age class is generally favorable to wildlife. Increasing dominance by a few plant species is commonly accompanied by a corresponding decrease in numbers of wildlife.

engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. The ratings are given in the following tables: Building site development, Sanitary facilities, Construction materials, and Water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations need to be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to (1) evaluate the potential of areas for residential, commercial, industrial, and recreation uses; (2) make preliminary estimates of construction conditions; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; (5) plan detailed onsite investigations of soils and geology; (6) locate potential sources of gravel, sand, earthfill, and topsoil; (7) plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and (8) predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

building site development

Table 11 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings without basements, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan, or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and the depth to the water table.

Dwellings and small commercial buildings are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrink-swell potential, and organic layers can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 to 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material, a base of gravel, crushed rock, or stabilized soil material, and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, and depth to a high water table affect the traffic supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

sanitary facilities

Table 12 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 12 also shows the suitability of the soils for use as daily cover for landfills. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to effectively filter the effluent. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

Table 12 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage due to rapid permeability of the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground water pollution. Ease of excavation and revegetation needs to be considered.

The ratings in table 12 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench type landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area type sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for the final cover.

construction materials

Table 13 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a probable or improbable source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet, and the depth to the water table is less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. Sand and gravel are used in many kinds of construction. Specifications for each use vary widely. In table 13, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft rock, such as limestone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

water management

Table 14 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table (fig. 14). Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; and subsidence of organic layers. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, or sulfur. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth (fig. 15). The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or to a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts or sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

soil properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics. These results are reported in table 21.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classifications, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

engineering index properties

Table 15 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under "Soil series and their morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If a soil contains particles coarser than sand, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (*2*) and the system adopted by the American Association of State Highway and Transportation Officials (*1*).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as Pt. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in table 21.

Rock fragments larger than 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

physical and chemical properties

Table 16 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, and plasticity; the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earth-moving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3 bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems, septic tank absorption fields, and construction where the rate of water movement under saturated conditions affects behavior.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The change is based on the soil fraction less than 2 millimeters in diameter. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, greater than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.05 to 0.69.

The higher the value the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their resistance to wind erosion in cultivated areas. The groups indicate the susceptibility of soil to wind erosion and the amount of soil lost. Soils are grouped according to the following distinctions:

1. Sands, coarse sands, fine sands, and very fine sands. These soils are generally less suitable for crops. They are extremely erodible, and vegetation is difficult to establish.

2. Loamy sands, loamy fine sands, and loamy very fine sands. These soils are very highly erodible. Crops can be grown if intensive measures to control wind erosion are used.

3. Sandy loams, coarse sandy loams, fine sandy loams, and very fine sandy loams. These soils are highly erodible. Crops can be grown if intensive measures to control wind erosion are used.

4L. Calcareous loamy soils that are less than 35 percent clay and more than 5 percent finely divided calcium carbonate. These soils are erodible. Crops can be grown if intensive measures to control wind erosion are used.

4. Clays, silty clays, clay loams, and silty clay loams that are more than 35 percent clay. These soils are moderately erodible. Crops can be grown if measures to control wind erosion are used.

5. Loamy soils that are less than 18 percent clay and less than 5 percent finely divided calcium carbonate and sandy clay loams and sandy clays that are less than 5 percent finely divided calcium carbonate. These soils are slightly erodible. Crops can be grown if measures to control wind erosion are used.

6. Loamy soils that are 18 to 35 percent clay and less than 5 percent finely divided calcium carbonate, except silty clay loams. These soils are very slightly erodible. Crops can easily be grown.

7. Silty clay loams that are less than 35 percent clay and less than 5 percent finely divided calcium carbonate. These soils are very slightly erodible. Crops can easily be grown.

8. Stony or gravelly soils and other soils not subject to wind erosion.

Organic matter is the plant and animal residue in the soil at various stages of decomposition.

In table 16, the estimated content of organic matter of the plow layer is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter of a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

soil and water features

Table 17 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are assigned to one of four groups. They are grouped according to the intake of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding, the temporary inundation of an area, is caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall and water in swamps and marshes are not considered flooding.

Table 17 gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, common, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *common* that it is likely under normal conditions; *occasional* that it occurs, on an average, no more than once in 2 years; and *frequent* that it occurs on an average of more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months;

November-May, for example, means that flooding can occur during the period November through May.

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and absence of distinctive horizons that form in soils that are not subject to flooding.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The depth to a seasonal high water table applies to undrained soils. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 17 are the depth to the seasonal high water table; the kind of water table—that is, perched or apparent; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in table 17.

An apparent water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A perched water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Only saturated zones within a depth of about 6 feet are indicated. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. The first numeral in the range indicates how high the water rises above the surface. The second numeral indicates the depth below the surface.

Depth to bedrock is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is specified as either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence results from either dessication and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. Table 17 shows the expected initial subsidence, which usually is a result of drainage, and annual subsidence, which usually is a result of oxidation.

Not shown in the table is subsidence caused by an imposed surface load or by the withdrawal of ground water throughout an extensive area as a result of lowering the water table.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors creates a severe corrosion environment. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

physical, chemical, and mineralogical analyses of selected soils

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Physical, chemical, and mineralogical properties of representative pedons sampled in Pasco County are presented in tables 18, 19, and 20. Analyses were conducted and coordinated by the Soil Characterization Laboratory, Soil Science Department, University of Florida. Detailed profile descriptions of soils analyzed are given in alphabetical order in the section "Classification of the soils." Laboratory data and profile information for additional soils occurring in Pasco County as well as other counties in Florida are on file at the Soil Science Department, University of Florida.

Soils were sampled by horizon from pits at carefully selected locations that represent typical pedons. Samples were air-dried, crushed, and sieved through a 2-millimeter screen. Most analytical methods used are outlined in Soil Survey Investigations Report No. 1 (*7*).

Particle-size distribution, given in table 18, was determined by using a modification of the pipette procedure with sodium hexametaphosphate as the dispersant. Hydraulic conductivity, bulk density, and water content were obtained on undisturbed core samples.

Extractable bases, given in table 19, were obtained by equilibrating and leaching soils with ammonium acetate buffered at pH 7.0. Sodium and potassium in the extract were determined by flame emission, and calcium and magnesium were determined by atomic absorption spectroscopy. Extractable acidity was determined by the barium chloride-triethanolamine method at pH 8.2. Sum of cations, which may be considered a measure of the cation exchange capacity, was obtained by summation of extractable bases and extractable acidity. Base saturation is the ratio of extractable bases to sum of cations expressed as a percentage. Organic carbon was determined by a modification of the Walkley-Black wet combustion method. Electrical conductivity determinations were made with a conductivity bridge on 1:1, soil to water, mixtures. The pH measurements were made with a glass electrode using water in a 1:1, soil to solution, ratio; 0.01 Molar calcium chloride solution in a 1:2, soil to solution, ratio; and 1*N* potassium chloride solution in a 1:1, soil to solution, ratio. Aluminum, carbon, and iron were extracted from suspected spodic horizons with 0.1 M sodium pyrophosphate; determination of aluminum and iron was by atomic absorption, and determination of extracted carbon was by the Walkley-Black wet combustion method. Iron and aluminum extractable in sodium dithionite-citrate were determined by atomic absorption.

The values in table 20 represent a relative distribution, not an absolute quantity, of minerals in the clay fraction. Peak heights at 18, 14, 7.2, 4.83, and 4.31 angstroms representing montmorillonite and interstratified expandibles, vermiculate and 14 angstrom intergrades, kaolinite, quartz, and gibbsite were measured, summed, and normalized to give percent soil minerals identified in X-ray diffractograms. The absolute percentage would require additional knowledge of particle size, crystallinity, unit structure substitution, and matrix affects.

The sandy nature of Pasco County soils is indicated in table 18. Only seven soils—Aripeka, Felda, Flemington Variant, Homosassa, Micanopy, and Zephyr—have horizons containing more than 10 percent clay in the upper 20 inches of the pedon. Only four soils—Flemington Variant, Homosassa, Nobleton, and Micanopy—have one or more horizons that contain 35 percent or more clay. Pedons of Adamsville, Candler, Candler Variant, Immokalee, Lake, Narcoossee, Pomello, Samsula, Tavares, Weekiwachee, and Zolfo soils contain 5 percent or less clay to a depth of 80 inches. Pedons of Aripeka, Arrendondo, Felda, Flemington Variant, Kendrick, Lochloosa, Micanopy, Millhopper, Newnan, Nobleton, Pineda, Pomona, Sparr, Vero, Wauchula, and Zephyr soils have sufficient increase in clay content in lower horizons to qualify as having an argillic horizon. Silt content is generally below 10 percent in the pedons studied, with the exceptions of the Felda, Flemington Variant, Homosassa, Micanopy, and Pomona soils. Fine sand dominates the sand fraction of all of the pedons. Droughtiness is a common characteristic of sandy soils, particularly those that are naturally moderately well drained, well drained, or excessively drained.

Hydraulic conductivity is a measure of the movement of water through the soil when the soil is saturated. As shown in table 18, hydraulic conductivity generally decreases as clay and silt percentages and bulk density increase. Hydraulic conductivity increases with increasing organic matter and better developed structure. Particularly low hydraulic conductivity is found in the argillic horizon of the Flemington Variant, Micanopy, and Nobleton soils, where hydraulic conductivity commonly is less than 1.0 centimeter per hour in horizons that are more than 20 percent clay.

The available water capacity of soil can be estimated from bulk density and water content data. Generally, horizons of sand and loamy sand retain less water than do horizons containing more clay. Calculated to a depth of 40 inches, available water capacity ranges from nearly 2 inches in the Adamsville, Arripeka, Candler, Flemington Variant, and Tavares pedons to more than 19 inches in the Samsula pedon, which has thick horizons of organic material. Other pedons on which data are available are intermediate, ranging from 3 to 12 inches.

The low values for extractable bases, sum of cations, and base saturation (table 19) are indicative of low inherent soil fertility. Calcium and magnesium are the predominant bases in all soils but the Homosassa and Weekiwachee, which are high in sodium because of inundation by seawater. In all other soils, the content of extractable sodium is low. Trace amounts of potassium coupled with low base saturation underscore the absence of appreciable quantities of weatherable minerals in all these soils except the Flemington Variant.

The sum of cations reflects the amount of organic matter and clay and the type of clay present and increases with an increase in organic matter and clay content. Therefore, the sum of cations generally is relatively high in the surface horizon, where organic matter is high, and decreases with depth to the argillic or spodic horizon, where it again increases.

Organic carbon content is greatest in the upper horizons and spodic horizon of all soils and is generally notably low in the A2 horizon. Because organic carbon directly influences nutrient- and water-retention capacities, management practices that conserve and maintain organic carbon are desirable and are especially important on the soils that have low content of organic carbon and clay. Such soils are the Adamsville, Arredondo, Candler, Candler Variant, Immokalee, Lake, Millhopper, Narcoossee, Orlando, Pomello, Pomona, Sellers, Smyrna, Tavares, and Zolfo soils.

Electrical conductivity values reflect the amount of free salts present in the soil solution, and when high (generally above 3 millimhos per centimeter), indicate conditions which may adversely affect plant growth. Only two of the soils, Homosassa and Weekiwachee, exhibit values sufficiently high to indicate that growth of salt-sensitive plants would be affected.

The pH determinations reflect the acidity of the soils. In general, nutrient availability is greatest in soil when the reaction in water is between pH 6 and 7. Addition of lime is a common management practice used to raise the pH of the plow layer. Soil reaction, in water, between pH 7.5 to 8.2 indicates the presence of free carbonate minerals and is noted in the Felda and Vero pedons. Free carbonates readily reduce phosphorus availability to plants. Soil reaction in calcium chloride and potassium chloride is generally 0.5 to 1.5 units lower than in water.

Sodium pyrophosphate extractable iron was 0.02 percent or less in selected horizons of Spodosols. The ratio of pyrophosphate extractable carbon and aluminum to clay in the Immokalee, Narcoossee, Newnan, Pomello, Pomona, Smyrna, Vero, Wauchula, and Zolfo soils is sufficient to meet certain chemical criteria for spodic horizons.

Mineralogy of the sand and silt fractions (not shown) is siliceous, and content of weatherable minerals is minimal. Mineralogy of the crystalline components of the clay fraction is given in table 20 for selected horizons of the sample pedons. In general, the clay suite is composed of varying amounts of montmorillonite, a 14 angstrom intergrade mineral, kaolinite, quartz, and gibbsite. Illite and vermiculite are not found in any of the horizons studied. Because of the shrink-swell character of montmorillonite, care must be exercised when utilizing Flemington Variant and Micanopy soils, which are high in content of this mineral, for any engineering purpose. Montmorillonite also dominates the clay suite in the Felda and Zephyr soils, but total clay content is lower in these soils than in the Flemington Variant and Micanopy soils. Kaolinite, quartz, and the 14 angstrom intergrade minerals are present in varying amounts in all the other soils except Weekiwachee soils, which are totally amorphous. Montmorillonite and the 14 angstrom intergrade have higher cation exchange capacity than kaolinite, quartz, and gibbsite and, therefore, have greater ability to retain plant nutrients.

engineering index test data

Table 21 contains engineering test data for some of the major soil series in the survey area. The tests were made by the Soils Laboratory, Florida Department of Transportation, Bureau of Materials and Research. They were made to help evaluate the soils for engineering purposes. The classifications given are based on data obtained by mechanical analysis and by tests to determine liquid limit and plastic limit.

The mechanical analyses were made by combined sieve and hydrometer methods. In this method, the various grain-sized fractions were calculated on the basis of all the material in the soil sample, including that coarser than 2 millimeters in diameter. The mechanical analyses used in this method should not be used in naming textural classes of soils.

The liquid limit and plasticity index indicate the effect of water on the strength and consistence of the soil material. As the moisture content of a clayey soil is increased from a dry state, the material changes from a semisolid to a plastic state. If the moisture content is further increased, the material changes from a plastic to a liquid state. The plastic limit is the moisture content at which the soil material changes from a semisolid to a plastic state, and the liquid limit is the moisture content at which the soil material changes from a plastic to a liquid state. The plasticity index is the numerical difference between the liquid limit and the plastic limit. It indicates the range of moisture content within which a soil material is plastic. The data on liquid limit and plasticity index in this table are based on laboratory tests of soil samples.

Compaction (or moisture-density) data are important in earthwork. If soil material is compacted at a successively higher moisture content, assuming that the compactive effort remains constant, the density of the compacted material increases until the optimum moisture content is reached. After that, density decreases with increase in moisture content. The highest dry density obtained in the compactive test is termed maximum dry density. As a rule, maximum strength of earthwork is obtained if the soil is compacted to the maximum dry density.

classification of the soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (*8*). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. In table 22, the soils of the survey area are classified according to the system. The categories are defined in the following paragraphs.

ORDER. Ten soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Entisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Aquent (*Aqu*, meaning water, plus *ent*, from Entisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Psammaquents (*Psamm,* meaning sand texture, plus *aquent*, the suborder of the Entisols that have an aquic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Psammaquents.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Mostly the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is siliceous, hyperthermic Typic Psammaquents.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series.

soil series and their morphology

In this section, each soil series recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the Soil Survey Manual (*6*). Many of the technical terms used in the descriptions are defined in Soil Taxonomy (*8*). Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed soil map units."

Adamsville series

The Adamsville series is a member of the hyperthermic, uncoated family of Aquic Quartzipsamments. It consists of somewhat poorly drained, rapidly permeable soils that formed in thick beds of sandy marine sediment. These nearly level soils are on low broad flats that are less than 2 feet higher in elevation than adjacent areas of poorly drained soils. Slopes are generally less than 2 percent. In most years, under natural conditions, the water table may rise to within 20 inches of the surface for less than 2 weeks during very wet seasons but remains at a depth of 20 to

40 inches for 2 to 6 months. It recedes to a depth greater than 40 inches during dry periods.

Adamsville soils are geographically closely associated with Basinger, Myakka, Narcoossee, Sellers, Smyrna, Tavares, and Zolfo soils. Basinger soils are poorly drained and have a Bh&A horizon. Myakka and Smyrna soils are poorly drained and have a spodic horizon. Narcoossee soils have a spodic horizon and are at slightly lower elevations. Sellers soils are very poorly drained, have an umbric epipedon, and are in depressions. Tavares soils are at slightly higher elevations on the landscape and do not have mottles that are evidence of wetness between depths of 20 and 40 inches. Zolfo soils have a spodic horizon.

Typical pedon of Adamsville fine sand, in an area of improved pasture, 1.6 miles west of Florida Highway 581, 80 feet north of an east-west trail road and 50 feet south of an east-west line fence, SE1/4NE1/4 sec. 22, T. 24 S., R. 19 E.

A11—0 to 3 inches; very dark gray (10YR 3/1) fine sand; single grain; loose; few fine and medium roots; small pieces of decomposed organic material give a salt-and-pepper appearance; very strongly acid; clear smooth boundary.

A12—3 to 8 inches; grayish brown (10YR 5/2) fine sand; few fine faint brownish yellow mottles; common scattered light brownish gray (10YR 6/2) and light gray (10YR 7/1) splotches; single grain; loose; few fine and medium roots; strongly acid; gradual wavy boundary.

C1—8 to 23 inches; very pale brown (10YR 7/4) fine sand; single grain; loose; few fine and medium roots; strongly acid; gradual wavy boundary.

C2—23 to 57 inches; light gray (10YR 7/2) fine sand; common medium to coarse brownish yellow (10YR 6/8), yellow (10YR 8/8), and light yellowish brown (10YR 6/4) and few fine faint very pale brown mottles; single grain; compact in place, sand grains loose when disturbed; strongly acid; diffuse wavy boundary.

C3—57 to 80 inches; white (10YR 8/1) fine sand; few fine faint brownish yellow mottles; single grain; compact in place, sand grains loose when disturbed; medium acid.

The total thickness of the A and C horizons is 80 inches or more. Reaction ranges from strongly acid to neutral throughout. The content of silt and clay in the 10- to 40-inch control section is less than 5 percent.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. It ranges from 3 to 8 inches in thickness.

The C horizon has hue of 10YR, value of 5 to 7, and chroma of 1 to 4; or it has hue of 10YR, value of 8, and chroma of 1 or 2. The upper part of the C horizon commonly has chroma of 3 or 4, and the lower part commonly has chroma of 1 or 2. Texture is fine sand. The C horizon commonly is mottled in shades of gray, yellow, and brown.

Anclote series

The Anclote series is a member of the sandy, siliceous, hyperthermic family of Typic Haplaquolls. It consists of very poorly drained, rapidly permeable soils that formed in sandy marine sediment. These nearly level soils are in depressional areas and on flood plains of rivers. Slopes are less than 2 percent. In most years, under natural conditions, the water table is above or near the surface during wet seasons. In dry seasons, the water table recedes to below 20 inches. Flood plains are frequently flooded.

Anclote soils are geographically closely associated with Adamsville, Basinger, Delray, Okeelanta, Pompano, Pomello, Sellers, Samsula, Tavares, and Zephyr soils. Adamsville, Pomello, and Tavares soils are on better drained landscape positions and do not have a mollic epipedon. Basinger soils have a Bh&A horizon and do not have a mollic epipedon. Delray and Zephyr are on landscape positions similar to those of Anclote soils but differ by having an argillic horizon. Okeelanta and Samsula soils are organic. Pompano soils are poorly drained and do not have a mollic epipedon. Sellers soils are more acid and have an umbric epipedon 24 inches or more thick. Zephyr soils have an argillic horizon within a depth of 20 inches below the mineral surface and have an umbric epipedon.

Typical pedon of Anclote fine sand, in a wooded area, about 0.2 mile north of the Pasco-Hillsborough county line and 1.4 miles east of Florida Highway 587, SW1/4SE1/4 sec. 36, T. 25 S., R. 16 E.

A11—0 to 7 inches; black (N 2/0) fine sand; weak medium granular structure; very friable; many fine roots; slightly acid; clear smooth boundary.

A12—7 to 14 inches; very dark gray (10YR 3/1) fine sand; common medium distinct dark gray (10YR 4/1) mottles; weak medium granular structure; very friable; many fine and common medium roots; neutral; clear smooth boundary.

C1g—14 to 22 inches; grayish brown (10YR 5/2) fine sand; single grain; loose; common fine roots; neutral; gradual smooth boundary.

C2g—22 to 35 inches; light brownish gray (10YR 6/2) fine sand; single grain; loose; few fine roots; neutral; gradual smooth boundary.

C3g—35 to 80 inches; gray (10YR 6/1) fine sand; single grain; loose; neutral.

The total thickness of the A and C horizons is 80 inches or more. The texture is fine sand throughout. Reaction in all horizons ranges from slightly acid to mildly alkaline.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2; or it is neutral and has value of 2 or 3. The Al2 horizon has few to common fine to medium mottles in shades in gray. The A horizon is about 2 to 10 percent organic matter and ranges from 10 to 20 inches in thickness.

The C horizon has hue of 10YR or 5Y, value of 4 through 7, and chroma of 1 or 2. Some pedons have distinct mottles in shades of yellow or brown in this horizon.

Aripeka series

The Aripeka series is a member of the fine-loamy, siliceous, hyperthermic family of Aquic Hapludalfs. It consists of somewhat poorly drained, moderately rapidly permeable soils that formed in sandy and loamy marine sediment over soft and hard limestone (fig. 14). These nearly level soils occur on low ridges adjacent to the saltwater marsh. In most years, under natural conditions, the water table is at a depth of l8 to 30 inches for 2 to 6 months, and at a depth of 30 to 60 inches for 6 months or more. Under natural conditions, these soils may be flooded very briefly by saltwater during storm tides but not during normal high tides. Slopes are dominantly less than 2 percent.

Aripeka soils are geographically closely associated with Homosassa, Lacoochee, and Vero soils. Homosassa soils are very poorly drained and are in low, frequently flooded areas in the saltwater marsh. Lacoochee soils do not have an argillic horizon, are poorly drained, and are on lower landscape positions in the saltwater marsh. Vero soils have a spodic horizon.

Typical pedon of Aripeka fine sand, in an undisturbed area of Aripeka fine sand, 0.5 mile south of the Pasco-Hernando County line, 0.25 mile east of Old Dixie Highway and 15 feet south of a trail road, SW1/4SW1/4 sec. 2, T. 24 S., R. l6 E.

A11—0 to 2 inches; dark grayish brown (10YR 4/2) rubbed fine sand; unrubbed mixture of grayish brown (l0YR 5/2) fine sand and small pieces of black organic material gives a salt-and-pepper appearance; weak fine granular structure; very friable; many fine and medium roots; extremely acid; clear smooth boundary.

A12—2 to 9 inches; grayish brown (10YR 5/2) fine sand; weak medium granular structure; very friable; few fine and medium roots; very dark gray streaks along root channels; very strongly acid; clear wavy boundary.

A2—9 to 12 inches; white (10YR 8/2) fine sand; few fine faint very dark gray mottles; single grain; loose; few fine roots; strongly acid; gradual wavy boundary.

B1—12 to 17 inches; yellowish brown (10YR 5/4) fine sand; common medium distinct dark yellowish brown (10YR 4/4) mottles; single grain; loose; few fine roots; sand grains weakly coated with clay materials; strongly acid; abrupt irregular boundary.

B21t—17 to 23 inches; strong brown (7.5YR 5/8) fine sandy loam; common medium distinct red (2.5YR 4/6, 5/8) mottles; weak medium subangular blocky structure; friable; few small pockets of sandy clay loam; neutral; abrupt irregular boundary.

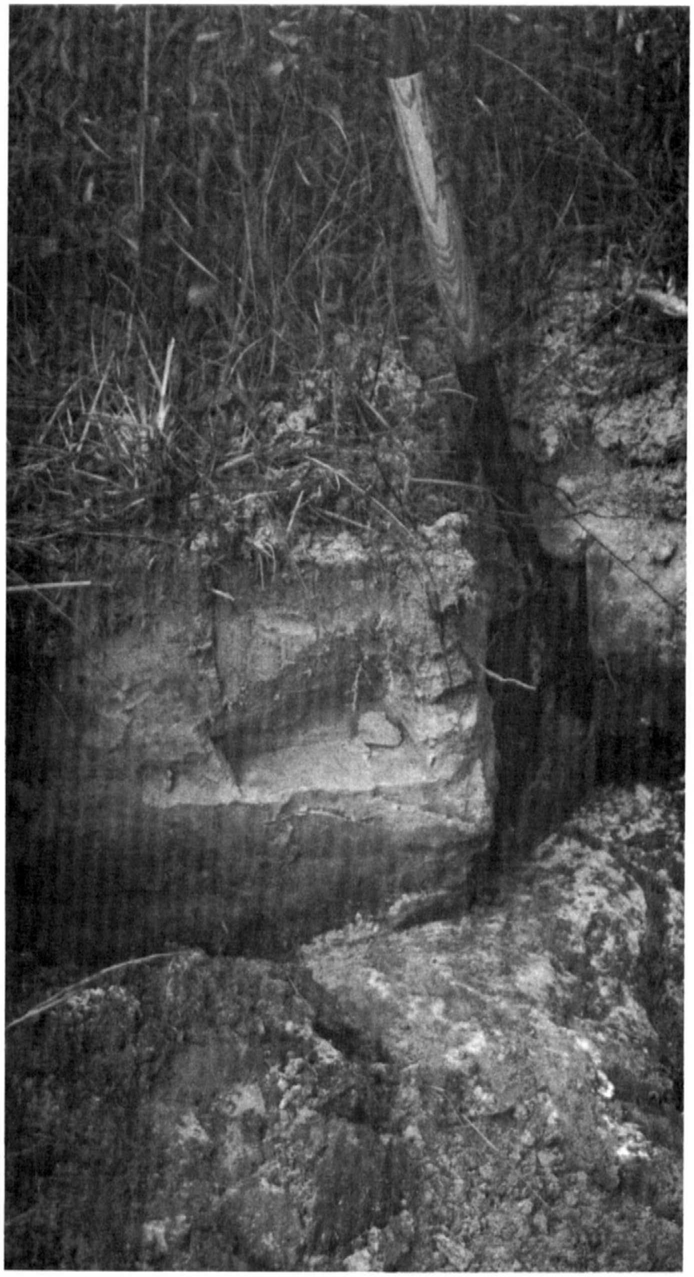

Figure 14.—Profile of Aripeka fine sand. Limestone is at a depth of about 26 inches.

B22t—23 to 26 inches; strong brown (7.5YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; less than 15 percent cobblestones; neutral; abrupt irregular boundary.

IIR—26 inches; hard white (10YR 8/1) and yellow (10YR 8/6) limestone; can be chipped with a spade but not dug; common irregular areas of soft, powdery white limestone mixed with hard limestone pieces; few scattered solution holes 1 to 6 inches in diameter filled with either soft powdery limestone or strong brown (7.5YR 5/8) fine sandy loam and sandy clay loam.

The combined thickness of the A and B horizons ranges from 20 to 30 inches except in solution holes, where thickness ranges to 45 inches or more. Depth to the IIR horizon ranges from about 23 to 40 inches.

The A1 horizon has hue of 10YR, value of 2 through 5, and chroma of 2 or less. The A2 horizon has hue of 10YR, value of 6 through 8, and chroma of 2 or 3. The texture of the A2 horizon is fine sand or loamy fine sand. Reaction in the A horizon ranges from extremely acid to mildly alkaline. The thickness of the A horizon ranges from 5 to 15 inches.

The B1 horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 through 8. Texture is fine sand or loamy fine sand. Reaction ranges from strongly acid to mildly alkaline. Thickness of the B1 horizon ranges from 3 to 10 inches.

The B21t and B22t horizons have color similar to that of the B1 horizon. Hard limestone cobblestones ranging from 3 to 10 inches in size commonly are present in this horizon and make up less than 35 percent of the horizon volume. Where the volume of cobblestones is less than 15 percent, texture is fine sandy loam or sandy clay loam. Where the volume of cobblestones is between 15 and 35 percent, texture is cobbly fine sandy loam or cobbly sandy clay loam. The clay content of the fine earth part of the B2t horizon ranges from 10 to 30 percent. Reaction ranges from neutral to moderately alkaline.

The IIR horizon is limestone rock of varying degrees of hardness. Commonly, it can be chipped but not dug with a hand spade. It can, however, be dug using large power machinery. In some pedons, parts of the rock formation are of such a degree of hardness that explosives must be used to break the rock. The upper boundary of the IIR horizon is very irregular. Many solution holes are in the limestone rock. They range in diameter from about 2 inches to 15 inches or more. They extend to varying depths. The holes are filled either with a soft, powderlike limestone or with B2t horizon material and may also contain hard limestone fragments.

In some pedons, a IICr horizon is present over a IIIR horizon. The IICr horizon is soft limestone that has hue of 10YR, value of 7 or 8, and chroma of 1 or 2 and is 20 to 35 percent by volume irregularly shaped hard limestone fragments. This horizon can be easily dug using hand tools. It contains solution holes as described for the IIR horizon. The IIIR horizon has the same characteristics as the IIR horizon.

Arredondo series

The Arredondo series is a member of the loamy, siliceous, hyperthemic family of Grossarenic Paleudults. It consists of well drained, moderately to moderately rapidly permeable soils that formed in sandy and loamy materials. These nearly level to sloping soils are on upland positions. Slopes are smooth to concave and range from 0 to 8 percent. In most years, under natural conditions, the water table is below 80 inches.

The Arredondo soils in this survey area are taxadjuncts to the Arredondo series, because they have slightly less silt and clay than is required for the series. This difference does not alter the use and behavior of the soils.

Arredondo soils are geographically closely associated with Candler, Gainesville, Kendrick, Lake, Millhopper, and Sparr soils. Candler and Lake soils are on about the same positions on the landscape but differ by being excessively drained and by not having an argillic horizon. Kendrick soils have an argillic horizon between depths of 20 and 40 inches and commonly are on small knolls. Millhopper soils are on a similar landscape, but are moderately well drained. Sparr soils are somewhat poorly drained and are at slightly lower elevations.

Typical pedon of Arredondo fine sand, in a citrus grove, 0.25 mile north of Lake Iola, 0.5 mile east of Interstate Highway 75, NW1/4NW1/4 sec. 15, T. 24 S., R. 20 E.

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) fine sand; weak medium granular structure; very friable; few fine and medium roots; neutral; clear smooth boundary.

A12—5 to 8 inches; dark gray (10YR 4/1) fine sand; few fine faint dark brown mottles; single grain; loose; many fine and medium roots; common uncoated sand grains and carbon fragments; slightly acid; clear wavy boundary.

A21—8 to 18 inches; yellowish brown (10YR 5/4) fine sand; few carbon fragments; common uncoated sand grains; single grain; loose; common fine and large roots; medium acid; gradual wavy boundary.

A22—18 to 35 inches; light yellowish brown (10YR 6/4) fine sand; few fine faint brownish yellow mottles; few carbon fragments; few fine roots; medium acid; gradual wavy boundary.

A23—35 to 58 inches; light yellowish brown (10YR 6/4) fine sand; common medium distinct strong brown (7.5YR 5/8) mottles; few uncoated sand grains; single grain; loose; few fine roots; medium acid; gradual wavy boundary.

B1—58 to 63 inches; brownish yellow (10YR 6/6) fine sand; weak medium granular structure; very friable; few fine roots; very strongly acid; clear wavy boundary.

B21t—63 to 68 inches; yellowish brown (10YR 5/8) sandy clay loam; common medium distinct reddish yellow (7.5YR 6/6) mottles; weak medium subangular blocky structure; very friable; few fine roots; very strongly acid; clear wavy boundary.

B22t—68 to 72 inches; yellowish brown (10YR 5/8) sandy clay loam; many coarse prominent yellowish red (5YR 5/8), red (2.5YR 4/8), and brownish yellow (10YR 6/6) mottles; moderate medium subangular blocky structure; firm; sand grains coated and bridged with clay; few fine roots; very strongly acid; gradual wavy boundary.

B23t—72 to 87 inches; light yellowish brown (10YR 6/4) sandy clay loam; weak medium subangular blocky structure; friable; sand grains coated with clay; few fine faint streaks in shades of red, yellow, brown, and gray; very strongly acid.

The thickness of the solum exceeds 80 inches. Reaction ranges from very strongly acid to medium acid in all horizons. In areas where lime has been applied, the reaction in the surface and upper subsurface horizons may range from very strongly acid to neutral. Few weathered and leached phosphatic pebbles ranging from 2 to 20 millimeters in diameter are present in many pedons.

The A1 or Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2; or it has hue of 10YR, value of 5, and chroma of 2. It ranges from 4 to 10 inches in thickness. The A2 horizon has hue of 10YR, value of 4 to 6, and chroma of 4. In some pedons the A2 horizon is absent and the A1 or Ap horizon lies directly on the B1 horizon. The A2 horizon is fine sand or loamy sand.

The B1 horizon has hue of 10YR, value of 5 or 6, and chroma of 6 or 8; or it has hue of 7.5YR, value of 5, and chroma of 6 or 8. The B1 horizon is fine sand or loamy fine sand.

The B2t horizon has hue of 10YR, value of 5 or 6, and chroma of 4 or 6; or it has hue of 10YR, value of 5, and chroma of 8; or it has hue of 7.5YR, value of 5, and chroma of 6 or 8, with or without mottles of higher value and chroma. The texture is fine sandy loam or sandy clay loam.

Astatula series

The Astatula series is a member of the hyperthermic, uncoated family of Typic Quartzipsamments. It consists of excessively drained, very rapidly permeable soils that formed in thick beds of sandy marine, eolian, or fluvial sediment. These nearly level to gently sloping soils are on the upland "sandhill" parts of the county. The water table is below 72 inches throughout the year. Slopes are smooth to concave and range from 0 to 5 percent.

Astatula soils are geographically associated with Arredondo, Candler, Lake, Paola, and Tavares soils. Arredondo soils have an argillic horizon. Candler soils have discontinuous lamellae at a depth of 50 to 80 inches. Lake soils have coated sand grains in the 10- to 40-inch control section. Paola soils have a B&A horizon. All these soils, except the Tavares soils, are on about the same position on the landscape. Tavares soils are at lower elevations and have a water table at a depth of 40 to 60 inches.

Typical pedon of Astatula fine sand, in a wooded area, 1/4 mile north of the county line and 3/4 mile east of the Anclote River; NE1/4SW1/4 sec. 33, T. 26 S., R. 16 E.

O1—1 inch to 0; discontinuous root mat; pine needles; partially decomposed organic material, leaves, and stems.

A1—0 to 6 inches; dark grayish brown (10YR 4/2) fine sand; single grain; loose; many uncoated sand grains; many fine and medium roots; very strongly acid; clear wavy boundary.

C1—6 to 29 inches; brown (10YR 5/3) fine sand; single grain; loose; many uncoated sand grains; many fine, medium, and large roots; very strongly acid; gradual wavy boundary.

C2—29 to 41 inches; very pale brown (10YR 7/4) fine sand; single grain; loose; many uncoated sand grains; many fine and medium and few large roots; very strongly acid; gradual diffuse boundary.

C3—41 to 80 inches; very pale brown (10YR 7/3) fine sand; single grain; loose; many uncoated sand grains; common fine and medium roots; very strongly acid.

The thickness of fine sand exceeds 80 inches. Reaction ranges from very strongly acid to medium acid throughout.

The A1 horizon has hue of 10YR, value of 4 or 5, and chroma of 1 or 2. Its thickness is 2 to 6 inches.

The C horizon has hue of 10YR, value of 5 through 7, and chroma of 3 or 4; or it has hue of 10YR, value of 5, and chroma of 6 or 8. Some pedons have mottles of gray or white in the lower part of the C horizon. These mottles are not indicative of wetness but are the color of the sand grains.

Basinger series

The Basinger series is a member of the siliceous, hyperthermic family of Spodic Psammaquents. It consists of poorly drained, very rapidly permeable soils that formed in sandy marine sediment. These nearly level soils are in poorly defined drainageways, depressions, and sloughs in the flatwoods. Slopes are less than 2 percent. In most years, under natural conditions, the water table is at a depth of less than 10 inches for 2 to 6 months and at a depth of 10 to 30 inches for more than 6 months. Depressions are ponded for 6 to 9 months or more in most years.

Basinger soils are geographically closely associated with Adamsville, Anclote, Myakka, Sellers, Smyrna, and Tavares soils. Adamsville and Tavares soils are better drained and are on higher ridges. Anclote soils have a mollic epipedon. Myakka and Smyrna soils have a spodic horizon. Sellers soils have an umbric epipedon and are only in depressions.

Typical pedon of Basinger fine sand, in a lightly wooded area, approximately 2 miles east of U.S. Highway 19 and 1.2 miles north of Florida Highway 587A, SW1/4NW1/4 sec. 24, T. 25 S., R. 16 E.

A1—0 to 3 inches; dark gray (10YR 4/1) fine sand; weak fine granular structure; very friable; many fine roots; very strongly acid; clear smooth boundary.

A2—3 to 10 inches; light gray (10YR 7/2) fine sand; single grain; loose; few fine faint dark gray mottles; common fine and medium roots; very strongly acid; clear wavy boundary.

Bh&A—10 to 19 inches; dark brown (10YR 4/3) and pale brown (10YR 6/3) fine sand; few medium distinct dark reddish brown (5YR 3/2) weakly cemented bodies and few fine distinct dark brown (7.5YR 4/4) mottles; single grain; loose; common fine and medium roots; dark brown color, the Bh portion, is due to thin coating of colloidal organic materials on sand grains; pale brown color is uncoated A2 horizon material; many uncoated sand grains in the Bh portion; very strongly acid; clear wavy boundary.

C1—19 to 30 inches; pale brown (10YR 6/3) fine sand; common medium distinct brownish yellow (10YR 6/6) mottles; single grain; loose; few fine roots; very strongly acid; gradual wavy boundary.

C2—30 to 42 inches; light gray (10YR 7/1) fine sand; few fine faint grayish brown mottles; single grain; loose; few fine roots; strongly acid; gradual diffuse boundary.

C3—42 to 80 inches; white (10YR 8/1) fine sand; single grain; loose; medium acid.

The thickness of fine sand is 80 inches or more. Reaction ranges from extremely acid to neutral in all horizons.

The A1 horizon has hue of 10YR, value of 2 to 6, and chroma of 1; or it has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2; or it is neutral and has value of 2 to 4. The thickness of the A1 horizon ranges from 2 to 8 inches.

The A2 horizon has hue of 10YR, value of 5, and chroma of 1; or it has hue of 10YR, value of 6, and chroma of 1 to 3; or it has hue of 10YR, value of 7, and chroma of 1 to 4; or it has hue of 10YR, value of 8, and chroma of 1 or 2; or it is neutral and has value of 5 to 8 or it has hue of 2.5Y, value of 6, and chroma of 2. The total thickness of the A horizon ranges from 10 to 40 inches.

The Bh part of the Bh&A horizon has hue of 5YR, value of 3, and chroma of 3 or 4; or it has hue of 7.5YR, value of 3, and chroma of 2; or it has hue of 7.5YR, value of 4, and chroma of 2 or 4; or it has hue of 10YR, value of 3 or 4, and chroma of 3, with common to many uncoated sand grains. The A part has colors similar to those of the A2 horizon. In the Bh&A horizon are few to many mottles or weakly cemented bodies that have hue of 5YR, value of 2, and chroma of 1 or 2; hue of 5YR, value of 3, and chroma of 2 to 4; hue of 10YR, value of 2, and chroma of 1 or 2; hue of 10YR, value of 3, and chroma of 2; hue of 7.5YR, value of 3, and chroma of 2. Some pedons have a Bh horizon that is similar in color to the Bh part of the Bh&A horizon. The Bh&A horizon is 6 to 20 inches thick.

The C horizon has hue of 10YR, 2.5Y, or 5Y, value of 5 to 8, and chroma of 1 or 2; or it has hue of 10YR, 2.5Y, or 5Y, value of 4 to 6, and chroma of 3; or it is neutral and has value of 5 to 8.

Bessie series

The Bessie series is a member of the clayey, montmorillonitic, euic, hyperthermic family of Terric Medisaprists. It consists of very poorly drained, slowly to very slowly permeable soils that formed in deposits of well decomposed organic materials over clayey and sandy marine sediment. These nearly level soils are in mangrove swamps. These soils are partly flooded daily by high tides and are totally flooded during storm tides. Slopes are less than 1 percent.

Bessie soils are geographically associated with beaches and vegetated soils adjoining beaches. Bessie soils differ by being organic.

Typical pedon of Bessie muck in a mangrove swamp on the south end of Dutchman Key (an island in the Anclote Keys), 200 feet north of the water line and about 1 mile north of the Pasco-Pinellas County line:

Oa—0 to 35 inches; black (5YR 2/1) muck; estimated 25 percent fibers unrubbed, less than 10 percent fibers rubbed; estimated 65 percent mineral material; sodium pyrophosphate color pale brown (10YR 6/3); common fine and medium roots in upper 25 inches; medium acid; pH 5.6 in 0.01 M calcium chloride; gradual wavy boundary.

IIC—35 to 43 inches; very dark grayish brown (10YR 3/2) sandy clay; massive; very sticky; very plastic; few fine and medium roots; soil flows easily through fingers when squeezed; scattered pockets of muck throughout horizon; medium acid; gradual wavy boundary.

IIIC—43 to 80 inches; gray (N 5/0) fine sand; single grain; loose; many scattered pockets of fine and medium shell fragments; few widely separated unbroken shells; common large pockets of muck in upper 20 inches; strongly alkaline.

The Oa horizon has hue of 5YR or 10YR, value of 2, and chroma of 1 or 2. The horizon is sapric, and the texture is muck. The content of fine mineral material ranges from about 40 to 70 percent. The thickness of the Oa horizon ranges from 16 to 40 inches. Reaction is strongly acid to neutral in 0.01 Molar calcium chloride.

The IIC horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. The texture is clay or sandy clay. Pockets of organic material are common in the upper part of the horizon. Reaction ranges from medium acid to mildly alkaline. The thickness of the IIC horizon ranges between 8 and 12 inches.

The IIIC horizon has hue of 10YR, value of 3 through 5, and chroma of 1 or 2; or it has hue of 2.5Y or 5Y, value of 5, and chroma of 1 or 2; or it is neutral and has value of 4 or 5. Its texture is fine sand or loamy fine sand with or without scattered pockets of unbroken or fragmented shells. Reaction is moderately or strongly alkaline.

Blichton series

The Blichton series is a member of the loamy, siliceous, hyperthermic family of Arenic Plinthic Paleaquults. It consists of poorly drained, moderately slowly permeable soils that formed in thick deposits of sandy and loamy sediment overlying clayey material. These nearly level to sloping soils are on the uplands. The water table is within a depth of 10 inches for a cumulative period of 1 to 4 months during most years. In drier seasons, it recedes to a depth of more than 40 inches. On slopes of more than 2 percent, wetness is caused primarily by seepage from higher lying areas. Slopes range from 0 to 8 percent.

Blichton soils are geographically closely associated with Flemington Variant, Kendrick, Lochloosa, Nobleton, and Wauchula soils. In Flemington Variant soils, the argillic horizon is within 20 inches of the surface. Kendrick soils are well drained, do not contain plinthite, and are on the better drained positions on the landscape. Lochloosa and Nobleton soils are somewhat poorly drained and have less than 5 percent plinthite. Wauchula soils have a spodic horizon.

Typical pedon of Blichton fine sand, 2 to 5 percent slopes, in an orange grove, approximately 30 feet northeast of curve in Florida Highway 577, SW1/4SE1/4 sec. 16, T. 24 S., R. 20 E.

Ap—0 to 8 inches; very dark gray (10YR 3/1) fine sand; weak medium granular structure; very friable; many fine and few large roots; medium acid; clear smooth boundary.

A21—8 to 14 inches; grayish brown (10YR 5/2) fine sand; common medium distinct yellowish brown (10YR 5/4) mottles; single grain; loose; common fine and medium roots; strongly acid; clear smooth boundary.

A22—14 to 38 inches; light gray (10YR 7/2) fine sand; single grain; loose; few fine and medium roots; strongly acid; clear wavy boundary.

B21tg—38 to 44 inches; light gray (10YR 7/1) fine sandy loam; common medium prominent yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) mottles; weak medium granular structure; friable; few fine and medium roots; clay bridging between sand grains; strongly acid; clear wavy boundary.

B22tg—44 to 50 inches; light gray (10YR 7/1) sandy clay loam; common medium prominent strong brown (7.5YR 5/6) and dark red (2.5YR 3/6) mottles; weak medium subangular blocky structure; friable; few fine roots; about 6 percent plinthite; faint discontinuous clay films; strongly acid; gradual smooth boundary.

B23tg—50 to 62 inches; light gray (10YR 7/1) sandy clay; moderate medium subangular blocky structure; firm; few fine roots; faint discontinuous clay films; strongly acid; clear wavy boundary.

Cg—62 to 80 inches; mixed light gray (10YR 7/2), strong brown (7.5YR 5/8), and yellowish brown (10YR 5/6) fine sandy loam with large pockets and coatings of loamy fine sand; weak medium granular structure; very friable; strongly acid.

Reaction ranges from medium acid to very strongly acid in the A horizon and is strongly acid or very strongly acid in the rest of the pedon. Many pedons have iron nodules and phosphatic pebbles ranging from 1 to 5 percent, by volume, in the A horizon and in the upper part of the Btg horizon.

The Ap or A1 horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. The Ap or A1 horizon is 4 to 10 inches thick.

The A2 horizon has hue of 10YR, value of 4 through 6, and chroma of 1 or 2. In some pedons, this horizon has few to common mottles in shades of gray, brown, or yellow. Its thickness ranges from 16 to 30 inches.

The Btg horizon has hue of 10YR, value of 4 through 7, and chroma of 1; or it has hue of 10YR, value of 6, and chroma of 2. The texture is fine sandy loam or sandy clay loam in the upper part and sandy clay loam or sandy clay in the lower part. The weighted clay content in the upper 20 inches of the Btg horizon is dominantly 25 to 35 percent, but ranges from 18 to 35 percent. The content of plinthite ranges from 5 to 25 percent between depths of 26 and 60 inches.

The Cg horizon has hue of 5Y, 2.5Y, or 10YR, value of 5 through 7, and chroma of 2 or less; or it is mixed shades of brown and gray. This horizon is fine sandy loam or sandy clay loam and has lenses of loamy sand or sandy loam. In some pedons, it is sandy clay or clay.

Candler series

The Candler series is a member of the uncoated hyperthermic family of Typic Quartzipsamments. It consists of excessively drained, rapidly permeable sandy soils that formed in thick beds of unconsolidated sandy marine, eolian, or fluvial sediment. These nearly level to sloping soils are in the upland "sandhill" parts of the county. The water table is below 80 inches throughout the year. Slopes are smooth to concave and range from 0 to 8 percent.

Candler soils are geographically closely associated with Arredondo, Astatula, Lake, Orlando, Paola, and Tavares soils. Arredondo soils are on about the same landscape position, but differ by having coated sand in the A2 horizon and by having an argillic horizon. Astatula soils do not contain lamellae. Lake soils are 5 to 10 percent silt and clay between depths of 10 and 40 inches. Orlando soils have an umbric epipedon. Paola soils have a B&A horizon and do not have lamellae. All these soils, except Tavares soils, are on about the same position on the landscape. Tavares soils are at lower elevations, have evidence of wetness between depths of about 40 and 60 inches, and do not have lamellae.

Typical pedon of Candler fine sand, 0 to 5 percent slopes, in a wooded area, 0.25 mile south of Pasco-Hernando County line and 20 feet west of trail road paralleling a north-south power trunkline, NE1/4NE1/4 sec. 6, T. 24 S., R. 18 E.

A11—0 to 3 inches; grayish brown (10YR 5/2) fine sand; weak medium granular structure; very friable; few fine roots; particles of organic matter give a salt-and-pepper appearance; many uncoated sand grains; strongly acid; clear wavy boundary.

A12—3 to 9 inches; brown (10YR 5/3) fine sand; few fine faint very dark grayish brown splotches; few distinct very dark grayish brown (10YR 3/2) root traces and channels; single grain; loose; few medium roots; few scattered charcoal fragments; many clean sand grains; strongly acid; gradual wavy boundary.

A21—9 to 32 inches; brownish yellow (10YR 6/6) fine sand; few fine faint very pale brown splotches; single grain; loose; very few medium roots; few scattered charcoal fragments; many clean sand grains; very strongly acid; gradual wavy boundary.

A22—32 to 50 inches; yellow (10YR 7/6) fine sand; few fine faint very pale brown mottles; single grain; loose; very few medium roots; many clean sand grains; very strongly acid; gradual wavy boundary.

A23&B—50 to 82 inches; mixed brownish yellow (10YR 6/6) and yellow (10YR 7/6) fine sand; single grain; loose; very few medium roots; common strong brown (7.5YR 5/6) loamy fine sand lamellae, 5 to 30 millimeters thick and 6 to 40 centimeters long, uniformly distributed, constitute about 20 percent of the horizon; individual lamellae are separated by about 2 inches of sand; sand grains are well coated in lamellae; very strongly acid.

Reaction ranges from medium acid to very strongly acid, except where the surface has been limed. Depth to the A2&B horizon ranges from 50 to 80 inches. Silt and clay make up less than 5 percent of the 10- and 40-inch control section.

The A1 or Ap horizon has hue of 10YR, value of 3 through 5, and chroma of 1 to 3. The thickness of the A1 or Ap horizon ranges from 2 to 9 inches.

The A2 horizon has hue of 10YR, value of 5 through 8, and chroma of 6 or 8; or it has hue of 10YR, value of 5, and chroma of 4; or it has hue of 10YR, value of 6 or 7, and chroma of 3. Mottles or splotches having chroma of 2 or less occur in the A2 horizon of some pedons, but these are the color of uncoated sand grains and are not indicative of wetness.

In the A2&B horizon, the A2 part has hue of 10YR, value of 6 through 8, and chroma of 4 through 8; or it has hue of 10YR, value of 6, and chroma of 2 or 3; or it has hue of 10YR, value of 7, and chroma of 3. The B part of the horizon is loamy sand, loamy fine sand, or sandy loam lamellae. These lamellae have hue of 5YR, 7.5YR, or 10YR, value of 5, and chroma of 6 or 8; or they have hue of 10YR, value of 6, and chroma of 6 or 8. Individual lamellae are separated by sand and are randomly distributed so that the frequency of occurrence varies. The lamellae range from about 1 millimeter to 1 centimeter in thickness and from about 1 centimeter to more than 1 meter in length. Commonly, the lamellae occur at a depth of 50 to more than 80 inches.

Candler Variant

The Candler Variant is a member of the hyperthermic, coated family of Typic Quartzipsamments. It consists of well drained, rapidly permeable soils that formed in thick beds of sandy marine, eolian, or fluvial sediment. These nearly level to gently sloping soils are on broad ridges in the north-central part of the county. The water table is below 72 inches throughout the year. Slopes are smooth to concave and range from 0 to 5 percent.

Candler Variant soils are geographically associated with the Arredondo, Candler, Kendrick, Millhopper, Sparr, and Tavares soils. Arredondo, Kendrick, Millhopper, and Sparr soils have an argillic horizon. Candler soils are very similar, but differ by being excessively drained and in an uncoated family. Tavares soils differ by having evidence of wetness between depths of about 40 and 60 inches and by belonging to an uncoated family.

Typical pedon of Candler Variant fine sand, in a wooded area, 2.4 miles south of the Pasco-Hernando County line, 1.1 miles south of large ditch crossing U.S. Highway 41 and 25 feet east of U.S. Highway 41, NW1/4SE1/4 sec. 14, T. 24 S., R. 18 E.

A11—0 to 4 inches; gray (10YR 5/1) fine sand; weak fine crumb structure; very friable; many fine and medium roots; many fine particles of organic material give a salt-and-pepper appearance; estimated slightly less than 50 percent very fine sand; many uncoated sand grains; very strongly acid; clear wavy boundary.

A12—4 to 8 inches; dark grayish brown (10YR 4/2) fine sand; weak medium crumb structure; very friable; few fine roots; many uncoated sand grains; estimated content of slightly less than 40 percent very fine sand; strongly acid; gradual wavy boundary.

A21—8 to 23 inches; yellowish brown (10YR 5/4) fine sand; single grain; loose; few fine and very few medium and coarse roots; estimated content of about 40 percent very fine sand; many uncoated sand grains; medium acid; gradual wavy boundary.

A22—23 to 45 inches; very pale brown (10YR 7/3) fine sand; single grain; loose; few medium and fine roots; few fine pieces of carbon; many uncoated sand grains; estimated content of about 35 percent very fine sand; medium acid; gradual wavy boundary.

A23—45 to 72 inches; very pale brown (10YR 8/3) fine sand; single grain; loose; few fine roots; few 3- to 4-inch diameter krotovinas containing dark grayish brown sand; estimated content of about 35 percent very fine sand; medium acid; gradual wavy boundary.

A24&B—72 to 80 inches; white (10YR 8/2) fine sand; single grain; loose; very few fine roots; estimated content of about 35 percent very fine sand; common pockets of yellowish brown fine sand; common brown (7.5YR 5/4), light brown (7.5YR 6/4), and yellowish brown (10YR 5/4) loamy fine sand lamellae 1 to 6 millimeters in diameter and 6 to 40 centimeters in length constitute about 15 percent of the horizon by volume; abundance of lamellae increases with depth; sand grains in lamellae are well coated with clay materials; strongly acid.

Reaction ranges from very strongly acid to medium acid in all horizons except in areas where the surface has been limed. The texture is fine sand. From 20 to 50 percent of the mineral portion of each horizon is very fine sand. The very fine sand content is not constant throughout but varies widely between horizons. The depth to the A2&B horizon ranges from 50 to 80 inches. Silt and clay content in the 10- to 40-inch control section ranges from 5 to 10 percent.

The A1 or Ap horizon has hue of 10YR, value of 2 through 5, and chroma of 1; or it has hue of 10YR, value of 3 through 5, and chroma of 2; or it has hue of 10YR, value of 4 or 5, and chroma of 3. The A1 or Ap horizon ranges from 3 to 9 inches in thickness.

The A2 horizon has hue of 10YR, value of 6 through 8, and chroma of 3; or it has hue of 10YR, value of 5 through 7, and chroma of 4; or it has hue of 10YR, value of 5 through 8, and chroma of 6 or 8; or it has hue of 7.5YR, value of 6, and chroma of 6 or 8. Mottles or splotches having chroma of 2 or less are in the A2 horizon of some pedons, but these are the color of uncoated sand grains and are not indicative of wetness.

In the A2&B horizon, the A2 part has hue of 10YR, value of 6 through 8, and chroma of 2 through 8. The B part has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 through 8; or it has hue of 5YR, value of 5, and chroma of 6 or 8. The texture of the B portion is loamy sand, loamy fine sand, or sandy loam. Individual lamellae range from 1 to 3 millimeters in thickness, and the total thickness of the lamellae in a profile ranges from 1 to 15 millimeters. The abundance of lamellae generally increases with depth and commonly becomes sufficiently dense to form an argillic layer at a depth between 80 and 100 inches.

Cassia series

The Cassia series is a member of the sandy, siliceous, hyperthermic family of Typic Haplohumods. It consists of somewhat poorly drained, moderately to moderately rapidly permeable soils that formed in thick sandy marine sediment. These nearly level to gently sloping soils are on low ridges that are slightly higher than the adjacent flatwoods. The water table is at a depth of 15 to 40 inches for about 6 months during most years. During the driest season, the water table drops to a depth of below 40 inches. Slopes range from 0 to 5 percent.

Cassia soils are geographically closely associated with Myakka, Narcoossee, Pomello, and Smyrna soils. Myakka and Smyrna soils are poorly drained. Narcoossee soils have a weakly developed spodic horizon. Pomello soils are moderately well drained and have a spodic horizon below a depth of 30 inches.

Typical pedon of Cassia fine sand, in a pasture, approximately 2 miles east of Florida Highway 587 and 0.5 mile south of Florida Highway 54, NW1/4SW1/4 sec. 36, T. 26 S., R. 17 E.

Ap—0 to 9 inches; black (N 2/0) rubbed fine sand; salt-and-pepper appearance when undisturbed; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; clear smooth boundary.

A21—9 to 14 inches; gray (10YR 6/1) fine sand; common medium distinct very dark gray (10YR 3/1) streaks; single grain; loose; many fine and medium roots; very strongly acid; clear wavy boundary.

A22—14 to 18 inches; light gray (10YR 7/2) fine sand; single grain; loose; many fine and medium roots; very strongly acid; abrupt smooth boundary.

B21h—18 to 26 inches; dark reddish brown (5YR 3/2) fine sand; weak medium granular structure; weakly cemented; sand grains coated with colloidal organic matter; few large roots; very strongly acid; gradual wavy boundary.

B22h—26 to 31 inches; mixed dark reddish brown (5YR 3/2) and reddish brown (5YR 4/3) fine sand; weak medium granular structure; weakly cemented; sand grains coated with colloidal organic matter; few medium roots; very strongly acid; gradual wavy boundary.

B3—31 to 45 inches; dark brown (7.5YR 4/4) fine sand; single grain; loose; small and medium dark reddish brown (5YR 3/3) weakly cemented Bh fragments; very strongly acid; gradual wavy boundary.

A'2—45 to 65 inches; brown (10YR 5/3) fine sand; common medium distinct dark brown (7.5YR 4/4) and yellowish brown (10YR 5/4) mottles; single grain; loose; very strongly acid; clear wavy boundary.

B'h—65 to 80 inches; very dark gray (5YR 3/1) fine sand; weak medium granular structure; friable; very strongly acid.

Reaction is very strongly acid or strongly acid throughout.

The A1 horizon has hue of 10YR, value of 5 to 7, and chroma of 1; or it is neutral and has value of 5 to 7. If undisturbed, this horizon has a salt-and-pepper appearance. Its thickness ranges from 3 to 5 inches. The Ap horizon has hue of 10YR, value of 2 to 4, and chroma of 1; or it is neutral and has value of 2 to 4. The thickness of the Ap horizon ranges from 6 to 9 inches.

The A2 horizon has hue of 10YR, value of 5 through 7, and chroma of 2 or less; or it is neutral and has value of 6 through 8. Its texture is fine sand or sand. The total thickness of the A horizon ranges from 9 to 20 inches.

The Bh horizon has hue of 7.5 YR, value of 3, and chroma of 2; or it has hue of 5YR, value of 2, and chroma of 1; or it has hue of 7.5YR, value of 3, and chroma of 1 through 4; or it has hue of 7.5YR, value of 4, and chroma of 3 or 4; or it has hue of 10YR, value of 2, and chroma of 1. Its texture is fine sand or sand. Most sand grains are coated with collidal organic matter. The Bh horizon ranges from about 6 to 14 inches in thickness.

The B3 horizon, where present, has hue of 10YR, value of 3, and chroma of 3; or it has hue of 10YR, value of 4, and chroma of 3 or 4; or it has hue of 7.5YR, value of 4, and chroma of 4. Its texture is fine sand or sand. The thickness of the B3 horizon ranges from about 7 to 14 inches.

The A'2 horizon has hue of 10YR, value of 5 through 8, and chroma of 1 through 4. The thickness of the A'2 horizon ranges from 19 to 34 inches.

The B'h horizon, where present, has hue of 10YR, value of 2 or 3, and chroma of 1 to 3; or it has hue of 7.5YR, value of 4, and chroma of 2; or it has hue of 5YR, value of 3 or 4, and chroma of 1 or 2.

Some pedons have a C horizon below the B3 horizon. This horizon has hue of 10YR, value of 5 to 7, and chroma of 2 or 3; or it has hue of 10YR, value of 6 or 7, and chroma of 1; or it has hue of 10YR, value of 7, and chroma of 4. The texture is fine sand or sand.

Chobee series

The Chobee series is a member of the fine-loamy, siliceous, hyperthermic family of Typic Argiaquolls. It consists of very poorly drained, slowly to very slowly permeable soils that formed in moderately thick beds of fine textured materials. These nearly level soils are on river flood plains.

The water table is within 10 inches of the surface for more than 6 months during most years. Flooding occurs frequently. The duration and extent of flooding are variable. During the rainy season in most years, the narrow areas of this soil are totally flooded and the broader areas are flooded to varying extents. In years of intense extended rainfall, the broad areas may also be nearly totally flooded. The duration of flooding varies between 1 and 4 months in most years. Slopes are less than 2 percent.

Chobee soils are geographically associated with Adamsville, Candler, EauGallie, Felda, Nobleton, Okeelanta, Pineda, Pomona, Sellers, Smyrna, Sparr, Tavares, Terra Ceia, Vero, Wauchula, and Zephyr soils. Adamsville, Candler, Sellers, Smyrna, and Tavares soils are sandy to a depth of 80 inches or more. EauGallie, Pomona, Smyrna, Vero, and Wauchula soils have a spodic horizon. Felda and Nobleton soils have an A horizon 20 to 40 inches thick. Okeelanta and Terra Ceia soils are organic. Pineda soils have a Bir horizon. Sparr soils have an A horizon more than 40 inches thick. Zephyr soils have an umbric epipedon and low base saturation.

Typical pedon of Chobee fine sandy loam, in a wooded area along a stream, 1.5 miles west of U.S. Highway 98 and Florida Highway 54 junction, and 100 feet north of U.S. Highway 98, NW1/4NE1/4 sec. 34, T. 25 S., R. 22 E.

A11—0 to 6 inches; black (10YR 2/1) fine sandy loam; moderate medium granular structure; friable; many fine and few medium roots; slightly acid; gradual wavy boundary.

A12—6 to 11 inches; very dark gray (10YR 3/1) fine sandy loam; weak medium granular structure; friable; few medium and few coarse roots; neutral; gradual wavy boundary.

B21tgca—11 to 25 inches; gray (5Y 5/1) sandy clay loam; common medium distinct yellowish brown (10YR 5/6, 5/4) and dark yellowish brown (10YR 4/4) mottles; weak medium granular structure; friable; few coarse roots; reddish brown (5YR 4/4) streaks along root channels; few white (10YR 8/1) calcareous nodules 0.5 inch in diameter; moderately alkaline; calcareous; wavy boundary.

B22tgca—25 to 33 inches; greenish gray (5GY 5/1) sandy clay loam; weak medium subangular blocky structure; firm; few coarse roots; reddish brown (5YR 4/4) streaks along root channels; scattered white (10YR 8/1) calcareous nodules 0.5 inch in diameter; moderately alkaline; calcareous; gradual wavy boundary.

B23tgca—33 to 56 inches; greenish gray (5GY 5/1, 6/1) sandy clay loam; common fine distinct light olive brown (2.5Y 5/4) mottles; weak medium subangular blocky structure; firm; few coarse roots; few white (10YR 8/1) calcareous nodules; strongly alkaline; calcareous; gradual wavy boundary.

Cg—56 to 80 inches; mixed greenish gray (5GY 6/1) and light greenish gray (5GY 7/1) sandy clay loam; massive; firm; strongly alkaline with masses of calcium carbonate.

The thickness of the solum is more than 40 inches. Reaction ranges from slightly acid to neutral in the A horizon and from moderately to strongly alkaline in the Btg horizon. In some pedons, reaction in parts of the Btg horizon may range to strongly or very strongly acid. This results from pyrite reduction where pyrites are present and the water table is lowered to allow soil drying.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1; or it is neutral and has value of 2 or 3. The total thickness of the A horizon ranges from 4 to 18 inches and its texture is fine sandy loam. In some pedons, organic materials in varying states of decomposition are present on the surface.

The B21tca horizon has hue of 10YR, value of 2 to 5, and chroma of 1; or it has hue of 5Y, value of 4 to 6, and chroma of 1 or 2; or it is neutral and has value of 2 to 5 with or without mottles; or it has hue of 10YR, value of 2, and chroma of 2; or it has hue of 2.5Y, value of 3 through 5, and chroma of 2 with mottles. Few to many nodules of calcium carbonate are present. Some pedons have a B21t horizon over a B22tca horizon. Both horizons have the same color range as the B21tca, but the B21t does not have the carbonate nodules. The B22tca and B23tca horizons have hue of 10YR, value of 4 or 5, and chroma of 2; or they have hue of 2.5Y, value of 4 or 5, and chroma of 2 with mottles; or they have hue of 10YR, value of 3 to 6, and chroma of 1; or they have hue of 5Y or 5GY, value of 5 or 6, and chroma of 1; or they are neutral and have value of 5 or 6 with or without mottles. The B2t horizon is calcareous in all parts or is calcareous only in the lower part. Clay content of the B2t ranges from 18 to 35 percent in the control section and texture is sandy loam or sandy clay loam.

The Cg horizon has hue of 10YR, value of 4 to 7, and chroma of 1; or it has hue of 5Y or 5GY, value of 4 to 7, and chroma of 1; or it is neutral and has value of 4 to 7, with or without mottles of stronger chroma. The texture is variable, ranging from loamy sand to loam.

Delray series

The Delray series is a member of the loamy, mixed, hyperthermic family of Grossarenic Argiaquolls. It consists of very poorly drained, moderately or moderately rapidly permeable soils that formed in sandy and loamy marine material. These nearly level soils are along drainageways and in depressions. In an unaltered natural state, they are ponded for more than 6 months during most years. Slopes are less than 2 percent.

Delray soils are geographically closely associated with Anclote, Basinger, EauGallie, Vero, and Zephyr soils. Anclote and Zephyr soils are on about the same position on the landscape as Delray soils. However, Anclote soils do not have an argillic horizon. Also, Zephyr soils have an umbric epipedon. Basinger soils have a Bh&A horizon and do not have a mollic epipedon. EauGallie and Vero soils also do not have a mollic epipedon, are more elevated on the landscape, and have a spodic horizon.

Typical pedon of Delray mucky fine sand, in a wooded area, about 300 feet east of graded road and 50 feet south of Pasco-Hernando County line, NE1/4NW1/4 sec. 22, T. 23 S., R. 22 E.

A11—0 to 8 inches; black (N 2/0) mucky fine sand; weak medium granular structure; very friable; common fine and medium roots; neutral; gradual smooth boundary.

A12—8 to 16 inches; black (10YR 2/1) fine sand; few fine faint dark gray mottles; weak medium granular structure; very friable; many fine roots; neutral; clear wavy boundary.

A21—16 to 21 inches; grayish brown (10YR 5/2) fine sand; common medium distinct very dark gray (10YR 3/1) streaks and mottles; single grain; loose; common fine and few medium roots; neutral; clear wavy boundary.

A22—21 to 43 inches; light brownish gray (10YR 6/2) fine sand; common medium distinct dark gray (10YR 4/1) mottles and very dark gray (10YR 3/1) streaks along old root channels; single grain; loose; common fine and few medium roots; neutral; clear wavy boundary.

A23—43 to 48 inches; grayish brown (10YR 5/2) fine sand; single grain; loose; few fine roots; neutral; clear wavy boundary.

B21tg—48 to 51 inches; grayish brown (2.5Y 5/2) fine sandy loam; weak medium subangular blocky structure; friable; sand grains are coated and bridged with clay; few fine roots; mildly alkaline; clear wavy boundary.

B22tg—51 to 66 inches; grayish brown (2.5Y 5/2) sandy clay loam; few fine distinct yellowish brown (10YR 5/4) mottles; moderate medium subangular blocky structure; firm; few clay films on ped surfaces; neutral; gradual wavy boundary.

B23tg—66 to 75 inches; greenish gray (5GY 6/1) sandy clay loam; common medium distinct olive brown (2.5Y 4/4) mottles; moderate medium subangular blocky structure; firm; clay films on ped surfaces; neutral; clear wavy boundary.

B24tg—75 to 80 inches; grayish brown (2.5Y 5/2) sandy clay loam; few fine faint light gray mottles; weak medium subangular blocky structure; firm; few clay films on ped surfaces; common fine sand lenses between peds; neutral.

Reaction ranges from medium acid to neutral in the A horizon and from neutral to mildly alkaline in the Btg horizon.

The A1 horizon has hue of 10YR, value of 3 or less, and chroma of 2 or less; or it is neutral and has value of 2 or 3. The organic matter content ranges from about 2 to 18 percent. The thickness of the Al horizon ranges from 10 to 24 inches.

The A2 horizon has hue of 10YR or 2.5YR, value of 4 through 7, and chroma of 2; or it has hue of 10YR, value of 4 through 7, and chroma of 1; or it is neutral and has value of 4 through 7. The texture is fine sand or sand and the thickness ranges from 27 to 55 inches.

The B2tg horizon has hue of 10YR to 5GY, value of 4 through 6, and chroma of 1; or it has hue of 10YR, value of 4 through 6, and chroma of 2; or it is neutral and has value of 4 through 6. Mottles of brown, yellow, or olive may be present. The texture is fine sandy loam or sandy clay loam.

Some pedons have a B3g horizon. Where the B3g horizon is present, its color is similar to that of the B2tg horizon. Its texture is loamy sand or loamy fine sand.

EauGallie series

The EauGallie series is a member of the sandy, siliceous, hyperthermic family of Alfic Hapladquods. It consists of poorly drained, moderately to moderately rapidly permeable soils that formed in sandy and loamy marine deposits. These nearly level soils are on broad areas of flatwoods. Slopes are less than 2 percent. In most years, under natural conditions, the water table is at a depth of 10 inches for 1 to 4 months and within a depth of 40 inches for more than 6 months.

EauGallie soils are geographically closely associated with Zephyr, Pomona, and Vero soils east of U.S. Highway 19, and with Aripeka, Jonesville, and Vero soils west of U.S. Highway 19. Aripeka soils do not have a spodic horizon and have hard limestone within 40 inches of the surface. Zephyr soils have a histic epipedon and occur in depressional areas of the flatwoods. Jonesville soils are well drained, do not have a spodic horizon, and are underlain by limestone within 40 inches of the surface. Pomona soils have low base saturation in the argillic horizon. Vero soils have an argillic horizon within 40 inches of the surface and are in a sandy over loamy family.

Typical pedon of EauGallie fine sand, in a pasture, about 30 feet from a canal, NE1/4NE1/4 sec. 3, T. 26 S., R. 19 E.

Ap—0 to 7 inches; black (10YR 2/1) when rubbed, salt-and-pepper appearance undisturbed, fine sand; weak fine granular structure; very friable; many uncoated sand grains mixed with small pieces of dark colored organic matter; many fine and medium roots; strongly acid; clear wavy boundary.

A21—7 to 9 inches; gray (10YR 5/1) fine sand; single grain; loose; common fine roots; slightly acid; gradual wavy boundary.

A22—9 to 13 inches; light gray (10YR 7/1) fine sand; single grain; loose; common fine roots; slightly acid.

A23—13 to 22 inches; white (10YR 8/1) fine sand; single grain; loose; common fine roots; slightly acid; clear wavy boundary.

B21h—22 to 25 inches; very dark grayish brown (10YR 3/2) fine sand; weak medium granular structure; few fine roots; sand grains coated with colloidal organic materials; slightly acid; gradual wavy boundary.

B22h—25 to 30 inches; dark brown (7.5YR 3/2) fine sand; weak medium subangular blocky structure; friable with some portions slightly firm; few fine roots; sand grains well coated with colloidal organic materials; slightly acid; gradual wavy boundary.

Bh&B3—30 to 35 inches; dark reddish brown (5YR 3/3) mixed with brown (10YR 4/3) fine sand; single grain and loose in brown part; massive and slightly firm in dark reddish brown part; few fine roots; color of Bh part is due to thin coatings of colloidal organic materials on sand grains, color of B3 part is that of uncoated sand grains; slightly acid; gradual wavy boundary.

A'2—35 to 51 inches; light brownish gray (10YR 6/2) fine sand; single grain; loose; few fine roots; slightly acid; clear irregular boundary.

B'21tg—51 to 54 inches; grayish brown (2.5Y 5/2) fine sandy loam; few fine faint light gray and common medium distinct yellowish brown (10YR 5/4) mottles; weak medium subangular blocky structure; friable; few fine roots; sand grains coated and bridged with clay; slightly acid; clear wavy boundary.

B'22tg—54 to 59 inches; light gray (5Y 6/1) sandy clay loam; common medium distinct olive (5Y 5/4) and light gray (10YR 7/1) and few fine prominent brownish yellow (10YR 6/6) mottles; weak medium subangular blocky structure; firm; sand grains are coated and bridged with clay; neutral; gradual wavy boundary.

B'23tg—59 to 80 inches; greenish gray (5GY 6/1) sandy clay loam; weak medium subangular blocky structure; firm; sand grains coated and bridged with clay; few white nodules of carbonatic material; mildly alkaline.

The thickness of the solum ranges from 46 to 80 inches or more. The combined thickness of the A, Bh, and A'2 horizons is more than 40 inches. Reaction ranges from very strongly acid to slightly acid in the A horizon, from strongly acid to slightly acid in the Bh horizon, and from medium acid to mildly alkaline in the A'2 and Btg horizons. A reaction more alkaline than strongly acid in the A horizon indicates that the soil has been limed or irrigated with alkaline water.

The A1 horizon has hue of 10YR, value of 2 to 4, and chroma of 1. The texture is fine sand. Undisturbed, it is a mixture of uncoated sand grains and small pieces of organic materials. The A2 horizon has hue of 10YR, value of 5 to 8, and chroma of 1; or it has hue of 10YR, value of 8, and chroma of 2; or it is neutral and has value of 5. The total thickness of the A horizon ranges from 15 to 30 inches.

The B2h horizon has hue of 5YR or 10YR, value of 2, and chroma of 1 or 2; or it has hue of 5YR or 10YR, value of 3, and chroma of 2 or 3; or it has hue of 7.5YR, value of 3, and chroma of 2; or it is neutral and has value of 2. The texture is sand or fine sand, and the sand grains are coated with colloidal organic materials.

The Bh&B3 horizon is in most pedons. The Bh part has colors similar to those given for the Bh horizon, but colors of higher value and chroma are most common. Sand grains in this part are coated with colloidal organic materials, but uncoated sand grains are common to many. The Bh part occurs either in a mixture with the B3 part or as few to many mottles or weakly cemented bodies scattered throughout the B3 part. The B3 part has hue of 10YR, value of 3 to 7, and chroma of 3; or it has hue of 10YR, value of 5, and chroma of 2; or it has hue of 10YR, value of 7, and chroma of 4. Sand grains are uncoated. Texture of the Bh&B3 horizon is sand or fine sand. In some pedons, there is no Bh part and only a B3 horizon with the colors given for the B3 part is present. In other profiles, neither a Bh&B3 or a B3 horizon is present.

The A'2 horizon has hue of 10YR, value of 4 or 5, and chroma of 1; or it has hue of 10YR, value of 5 or 6, and chroma of 2; or it has hue of 10YR, value of 7 or 8, and chroma of 3; or it has hue of 2.5Y, value of 5 or 6, and chroma of 2; or it is neutral and has value of 4 or 5. Its texture is sand or fine sand. This horizon is absent in some pedons, and the Bh&B3 horizon or B3 horizon rests directly on the B'tg horizon. In a few pedons, the Bh&B3, B3, and A'2 horizons are all absent, and the B2h horizon lies directly on the B'2tg horizon.

The B'2tg horizon has hue of 10YR, 2.5Y, or 5Y, value of 4 through 6, and chroma of 2 or less; or it has hue of 5GY, value of 6, and chroma of 1, with none to common mottles in shades of brown, yellow, and gray. Texture is fine sandy loam or sandy clay loam. Lenses and pockets of sand, loamy sand, or sandy loam range from none to common. Nodules of white (10YR 8/1, 8/2) carbonatic materials are present in the lower part in some pedons.

In a few pedons, a C horizon having texture of sand, fine sand, sandy loam, loamy fine sand, loamy sand, or mixed pockets and lenses of these textures is present within a depth of 80 inches. It has hue of 10YR, 5Y, or 5GY, value of 5 or 6, and chroma of 1 or 2.

Electra Variant

The Electra Variant is a member of the sandy, siliceous, hyperthermic family of Arenic Haplohumods. It consists of somewhat poorly drained, slowly permeable soils that formed in unconsolidated loamy marine sediment overlying soft limestone or limestone boulders. These nearly level to gently sloping soils are on upland ridges. The water table is at a depth of 25 to 40 inches for a cumulative period of 4 months during most years and recedes to a depth of more than 40 inches during drier periods. Infrequently, the water table may rise briefly to within 10 inches of the surface during periods of high rainfall. Slopes are smooth to convex and range from 0 to 5 percent.

Electra Variant soils are geographically closely associated with Immokalee, Myakka, Smyrna, and Tavares soils. Immokalee, Myakka, and Smyrna soils are poorly drained and do not have an argillic horizon below the spodic horizon. Tavares soils are moderately well drained and do not have a spodic and an argillic horizon. Immokalee, Myakka, and Smyrna soils are on wetter, slightly lower positions. Tavares soils occur on about the same position on the landscape as Electra Variant soils.

Typical pedon of Electra Variant fine sand, in a wooded area, 20 feet north of county line and 1/2 mile east of Florida Highway 595A, SW1/4SW1/4 sec. 36, T. 22 S., R. 15 E.

A11—0 to 2 inches, dark gray (10YR 4/1) rubbed, salt-and-pepper appearance when undisturbed, fine sand; weak fine granular structure; friable; many fine and medium roots; very strongly acid; clear smooth boundary.

A12—2 to 5 inches; gray (10YR 5/1) fine sand; single grain; loose; many fine and medium roots; many uncoated sand grains; few fine charcoal fragments; very strongly acid; gradual wavy boundary.

A2—5 to 39 inches; white (10YR 8/1) fine sand; single grain; loose; many fine and medium roots; strongly acid; clear irregular boundary.

B21h—39 to 4l inches; dark brown (7.5YR 3/2) fine sand; weak medium subangular blocky structure; common fine roots; sand grains are well coated with organic matter; very strongly acid; gradual irregular boundary.

B3&Bh—41 to 51 inches; dark yellowish brown (10YR 4/4) fine sand; common medium distinct very dark gray (10YR 3/1) bodies that are weakly cemented and very dark grayish brown (10YR 3/2) mottles; weak fine granular structure; very friable; few fine roots; very strongly acid; gradual wavy boundary.

B3—51 to 63 inches; dark yellowish brown (10YR 4/4) fine sand; single grain; loose; few fine roots; strongly acid; gradual wavy boundary.

A'2—63 to 70 inches; brown (10YR 5/3) fine sand; weak medium subangular blocky structure; friable; few fine roots; strongly acid; gradual wavy boundary.

B'21tg—70 to 74 inches; grayish brown (10YR 5/2) fine sandy loam, weak medium subangular blocky structure; friable; few fine roots; medium acid; gradual wavy boundary.

B'22tg—74 to 78 inches; grayish brown (2.5Y 5/2) sandy clay loam; common medium distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; slightly acid; abrupt irregular boundary.

IICr—78 to 82 inches; white (10YR 8/1) soft limestone; massive; firm; about 35 percent hard limestone fragments; moderately alkaline; calcareous.

Reaction is very strongly acid or strongly acid in the sandy layers and ranges from medium acid to neutral in the loamy layers.

The A1 horizon has hue of 10YR, value of 2 to 5, and chroma of 2 or less. If undisturbed, this horizon has a salt-and-pepper appearance. The thickness of the A1 horizon ranges from 2 to 8 inches.

The Bh horizon has hue of 7.5YR or 5YR, value of 2 or 3, and chroma of 1 or 2; or it has hue of 10YR, value of 2, and chroma of 1. The texture is fine sand or sand. The thickness of the Bh horizon ranges from 2 to 10 inches.

The B3&Bh horizon has hue of 10YR, 5YR, or 7.5YR, value of 4 or 5, and chroma oı 3 or 4, and it is mixed with Bh horizon fragments having the same colors as described for the Bh horizon. The texture is fine sand or sand. The thickness of the B3&Bh horizon ranges from about 5 to 12 inches.

The B3 horizon has hue of 10YR, 5YR, or 7.5YR, value of 4 or 5, and chroma of 3 or 4. The texture is fine sand or sand. The thickness of the B3 horizon ranges from about 6 to 16 inches.

The A'2 horizon has hue of 10YR, value of 5 to 7, and chroma of 1 to 3. The texture is fine sand or sand. The thickness of the A'2 horizon ranges from 2 to 8 inches.

The B'tg horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 to 3. The B'tg horizon is mottled with red, yellow, gray, or brown. Its texture is sandy loam, fine sandy loam, or sandy clay loam. The depth to the B'tg horizon ranges from 41 to about 79 inches. The thickness of this horizon ranges from 5 to 15 inches.

The IICr horizon is soft limestone that has hue of 10YR, value of 7 or 8, and chroma of 1 or 2. Hard limestone fragments occur randomly throughout the horizon, and they make up about 20 to 35 percent, by volume, of the horizon. The IICr horizon occurs between depths of 60 and 80 inches. The IICr horizon as described does not occur in all pedons. In some pedons in the western part of the survey area, a horizon consisting of many hard limestone cobblestones and boulders in a matrix ranging from sand to sandy clay loam occurs beneath the B'tg horizon. In some pedons in the eastern part of the survey area a similar horizon occurs, but the content and proportion of cobbletones and boulders are more variable.

Felda series

The Felda series is a member of the loamy, siliceous, hyperthermic family of Arenic Ochraqualfs. It consists of poorly drained, moderately to moderately rapidly permeable soils that formed in sandy and loamy marine sediment. These nearly level soils are on low, broad, flat areas. The water table is within 10 inches of the surface for 2 to 6 months of each year. Slopes are less than 2 percent.

Felda soils are geographically closely associated with Pineda and Vero soils. Felda soils do not have the Bir horizon of Pineda soils and the Bh horizon of Vero soils.

Typical pedon of Felda fine sand, in a slough area, 2.25 miles west of Quail Hollow School and 2.75 miles north of Florida Highway 54, NW1/4NE1/4 sec. 3, T. 26 S., R. 19 E.

A1—0 to 4 inches; black (N 2/0) fine sand; moderate medium granular structure; very friable; common uncoated sand grains; very friable; many fine roots; mildly alkaline; clear wavy boundary.

A21—4 to 10 inches; light brownish gray (10YR 6/2) fine sand; few fine faint pale brown (10YR 6/3) mottles; single grain; loose; common fine roots; moderately alkaline; clear wavy boundary.

A22—10 to 23 inches; light gray (10YR 7/2) fine sand; common medium prominent brownish yellow (10YR 6/6) mottles; single grain; loose; common fine roots; moderately alkaline; clear wavy boundary.

B21tg—23 to 27 inches; gray (10YR 6/1) sandy clay loam; many medium prominent yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; very friable; common fine roots; clay bridging between sand grains; few strongly cemented nodules of calcium chloride ranging to 2 inches in diameter; moderately alkaline; gradual wavy boundary.

B22tg—27 to 35 inches; gray (N 6/0) fine sandy loam; many medium prominent yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; friable; common fine roots; thin patchy clay films on ped faces; few strongly cemented nodules of calcium chloride ranging to 2 inches in diameter; moderately alkaline; gradual wavy boundary.

B31tg—35 to 41 inches; gray (5Y 6/1) loamy fine sand; common medium distinct brown (10YR 5/3) and light olive brown (2.5Y 5/4) mottles; weak medium subangular blocky structure; very friable; few fine roots; clay bridging between sand grains; few small nodules of calcium chloride; moderately alkaline; gradual wavy boundary.

B32g—41 to 47 inches; light gray (10YR 7/2) loamy fine sand; weak medium granular structure; very friable; moderately alkaline; gradual wavy boundary.

Cg—47 to 80 inches; white (5Y 8/1) fine sand; few fine faint olive mottles; single grain; loose; moderately alkaline.

Reaction is strongly acid to moderately alkaline in the A horizon and neutral or moderately alkaline in the Btg and Cg horizons.

The A1 or Ap horizon is neutral and has value of 2 through 4, or it has hue of 10YR, value of 2 through 5, and chroma of 1. Its thickness ranges from 3 to 6 inches. The A2 horizon is neutral and has value of 4 through 7; or it has hue of 10YR, value of 5 through 7, and chroma of 1 or 2; or it has hue of 10YR, value of 4, and chroma of 1. Mottles of yellow or brown range from none to common. The total thickness of the A horizon ranges from 20 to 40 inches, and the texture is sand or fine sand.

The Btg and B3g horizons are neutral and have value of 4 through 7, or they have hue of 10YR or 5Y, value of 4 through 7, and chroma of 1 or 2; or they have hue of 2.5Y, value of 4 through 6, and chroma of 2. Some pedons have mottles of yellow or brown. The texture of the Btg horizon is sandy loam, fine sandy loam, or sandy clay loam.

The Cg horizon has hue of 10YR to 5G, value of 4 through 8, and chroma of 2 or less, with or without mottles of higher or lower chroma. The texture is fine sand or loamy sand.

Flemington Variant

Flemington Variant is a member of the fine, montmorillonitic, hyperthermic family of Typic Albaqualfs. It consists of poorly drained, very slowly permeable soils that formed in thick beds of loamy and clayey marine sediment. These gently sloping soils are on low flats and ridges and on side slopes in the uplands. In most years, if the soil is in an unaltered natural state, the seasonal high water table is perched in the A horizon and the upper part of the Bt horizon. These horizons are saturated for 1 to 4 months during wet seasons. Slopes range from 2 to 5 percent.

Flemington Variant soils are geographically associated with Blichton, Kendrick, Micanopy, Pomona, and Sparr soils. All of the associated soils have an A horizon more than 20 inches thick. In addition, the Kendrick, Micanopy, and Sparr soils are better drained. Blichton soils contain more than 5 percent plinthite, and Pomona soils have a spodic horizon.

Typical pedon of Flemington Variant fine sand, in a cleared pasture, 0.5 mile west of Florida Highway 581 and 450 feet south of an east-west trail road, NE1/4SE1/4 sec. 23, T. 24 S., R. 19 E.

Ap—0 to 5 inches; very dark gray (10YR 3/1) fine sand; weak medium granular structure; very friable; few fine roots; medium acid; abrupt smooth boundary.

B21tg—5 to 11 inches; grayish brown (10YR 5/2) clay; common medium distinct dark grayish brown (10YR 4/2) and few fine faint yellowish red mottles; moderate medium subangular and angular blocky structure; firm; sticky and plastic; hard; thin distinct clay films on faces of peds; few slickensides; few medium roots; strongly acid; gradual wavy boundary.

B22tg—11 to 27 inches; light brownish gray (10YR 6/2) clay; common medium distinct brown (7.5YR 5/4) and few fine faint yellowish red mottles; moderate medium subangular and angular blocky structure; firm; sticky and plastic; thin, distinct clay films on faces of peds; few slickensides; few scattered medium roots; strongly acid; gradual wavy boundary.

B23tg—27 to 46 inches; light gray (10YR 7/1) clay; few fine faint brownish yellow and few medium prominent dusky red (10R 3/4) and red (10R 4/8) mottles; moderate medium subangular blocky structure; firm; sticky and plastic; few slickensides; few medium roots; strongly acid; gradual wavy boundary.

B24tg—46 to 63 inches; white (10YR 8/1) clay; many coarse prominent reddish yellow (5YR 7/6) and common medium distinct yellow (10YR 7/6) mottles; massive with areas of moderate medium subangular blocky structure; firm; sticky and plastic; hard; few discontinuous distinct clay films along structure breaks; strongly acid; gradual wavy boundary.

B3g—63 to 80 inches; light gray (5Y 7/1) clay; common medium distinct pale olive (5Y 6/3) and olive yellow (5Y 6/6) mottles; massive; firm; sticky and plastic; hard; sand grains coated with clay; few medium distinct vertical black streaks; few scattered areas of soft phosphatic material; few scattered pale brown and yellowish brown sand streaks; strongly acid.

The thickness of the solum is 50 or more inches. Reaction ranges from medium acid to extremely acid in the A horizon and from strongly acid to extremely acid in the B2tg horizon and the Cg horizon. Rock fragments and pebbles make up 0 to 5 percent of the solum.

The A1 or Ap horizon has hue of 10YR, value of 2 through 4, and chroma of 1 or less. The thickness of the A1 horizon ranges from 4 to 6 inches. Some pedons have an A2 horizon. The A2 horizon, where present, is neutral or has hue of 10YR, and it has value of 5 through 7 and chroma of 2 or less. The thickness of the A2 horizon ranges to 10 inches. The texture of the A horizon is fine sand.

The B2tg horizon has no hue or hue of 10YR, value of 4 through 7, and chroma of 2 or less, and it is mottled with brown, gray, or red. The texture is sandy clay or clay. The weighted clay content in the upper 20 inches of the horizon ranges from 35 to 60 percent, and the silt content is less than 20 percent. The content of plinthite ranges from 0 to 5 percent.

The B3g horizon has the colors of the B2tg horizon. Additionally, it has hue of 10YR, value of 8, and chroma of 1. It is clay or sandy clay, with or without pockets of sandy materials.

The Cg horizon has hue of 10YR or 5Y, value of 6 or 7, and chroma of 1 or 2; or it has hue of 5GY, value of 6 or 7, and chroma of 1. The C horizon is mottled with red, brown, and gray and has a sandy clay or clay texture.

Gainesville series

The Gainesville series is a member of the hyperthermic coated family of Typic Quartzipsamments. It consists of well drained, rapidly permeable soils that formed in thick beds of sandy marine sediment. These nearly level to gently sloping soils are on upland ridges and low hillsides. The water table is below a depth of 80 inches. Slopes range from 0 to 5 percent.

Gainesville soils are geographically closely associated with Arredondo, Candler, Kendrick, Lake, Millhopper, Orlando, and Sparr soils. Arredondo soils have an argillic horizon between depths of 40 and 80 inches. Candler soils are in an uncoated family and have discontinuous lamellae. Kendrick soils have an argillic horizon between depths of 20 and 40 inches. In Lake soils, silt and clay make up 5 to 10 percent of the 10- to 40-inch control section. Millhopper and Sparr soils are moderately well drained and somewhat poorly drained, respectively, and have an argillic horizon between depths of 40 and 80 inches. Orlando soils have an umbric epipedon.

Typical pedon of Gainesville loamy fine sand, in an orange grove, approximately 0.7 mile south of U.S. Highway 98 and 1.25 miles east of U.S. Highway 301, NW1/4NW1/4 sec. 24, T. 25 S., R. 21 E.

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) loamy fine sand; moderate medium granular structure; very friable; few fine and medium roots; few small phosphatic pebbles; most sand grains are coated; neutral; clear smooth boundary.

C1—8 to 29 inches; dark brown (7.5YR 4/4) loamy fine sand; weak medium granular structure; very friable; many fine and common medium roots; few weathered phosphatic pebbles ranging in size from 1/4 to 3/4 inch in diameter; most sand grains are coated; medium acid; clear smooth boundary.

C2—29 to 60 inches; yellowish red (5YR 5/6) loamy fine sand; weak medium granular structure; very friable; common fine and medium roots; few phosphatic pebbles; most sand grains are coated; medium acid; clear wavy boundary.

C3—60 to 80 inches; yellowish red (5YR 5/8) loamy fine sand; weak medium granular structure; very friable; few fine roots; few weathered phosphatic pebbles; most sand grains are coated; medium acid; gradual wavy boundary.

The depth of the soil is 80 inches or more. Reaction ranges from strongly acid to medium acid in all horizons, except where the surface has been limed. In limed areas, the upper part of the profile ranges to neutral. The content of silt and clay ranges from 10 to 15 percent in the 10- to 40-inch control section. Weathered phosphatic and iron pebbles ranging from 4 to 20 millimeters in diameter make up 1 to 3 percent of the total soil volume.

The A1 or Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2; or it has hue of 7.5, value of 4, and chroma of 2 or 4. The thickness of the A1 or Ap horizon ranges from 7 to 10 inches.

The upper part of the C horizon has hue of 10YR, value of 4, and chroma of 3 or 4; or it has hue of 10YR, value of 5, and chroma of 4 or 6; or it has hue of 7.5YR, value of 4, and chroma of 4; or it has hue of 7.5YR, value of 5, and chroma of 4 to 8. The lower part has hue of 7.5YR or 10YR, value of 5, and chroma of 6 or 8; or it has hue of 5YR, value of 4 or 5, and chroma of 6 or 8.

Homosassa series

The Homosassa series is a member of the sandy, siliceous, hyperthermic family of Typic Sulfaquents. It consists of very poorly drained, moderately rapidly to rapidly permeable soils that formed in sandy marine sediment. These nearly level soils are in tidal marshes along the west coast of the county. The water table fluctuates with the tide, and the soil normally is flooded daily throughout the year. Slopes are less than 1 percent.

Homosassa soils are geographically associated with Aripeka, Lacoochee, and Weekiwachee soils. Aripeka soils are better drained and have low *n* values and low sulfur content. Lacoochee soils do not have a thick, dark-colored A1 horizon and have soft limestone within a depth of 20 inches. Weekiwachee soils are organic. Aripeka and Lacoochee soils are on the higher areas of the landscape.

Typical pedon of Homosassa mucky fine sandy loam, in a salt marsh, approximately 0.3 mile west of U.S. Highway 19, SE1/4NW1/4 sec. 4, T. 25 S., R. 16 E.

A11—0 to 2 inches; very dark gray (10YR 3/1) mucky fine sandy loam; weak medium granular structure; very friable; slightly sticky; many fine roots; neutral; clear smooth boundary.

A12—2 to 11 inches; very dark gray (10YR 3/1) mucky fine sandy loam; few medium distinct dark grayish brown (10YR 4/2) mottles; moderate medium granular structure; very friable; many fine roots; neutral; gradual wavy boundary.

A13—11 to 16 inches; very dark grayish brown (10YR 3/2) rubbed, loamy fine sand; common medium distinct grayish brown (10YR 5/2) mottles; weak medium granular structure; very friable; common fine roots; neutral; gradual wavy boundary.

C1—16 to 25 inches; grayish brown (10YR 5/2) loamy fine sand; common medium distinct very dark gray mottles; weak medium granular structure; very friable; few fine roots; neutral; gradual wavy boundary.

C2—25 to 28 inches; light brownish gray (10YR 6/2) loamy fine sand; massive; very friable; few fine roots; few small limestone fragments; mildly alkaline; abrupt irregular boundary.

IICr—28 to 37 inches; light gray (10YR 7/1) soft limestone; massive; firm; about 35 percent hard limestone fragments; most roots do not penetrate this layer but are turned at the upper boundary; moderately alkaline; calcareous; abrupt irregular boundary.

IIIR—37 inches; hard limestone that can be chipped but not dug with a spade.

The combined thickness of the A and C horizons is 20 to 35 inches. Sulfur content is more than 0.75 percent within a depth of 20 inches. The depth to the IIIR horizon ranges from 23 to 40 inches.

The A horizon has hue of 10YR or 2.5Y, value of 3 or less, and chroma of 2 or less. Few to common mottles of gray and brown are in the A12 and A13 horizons. The organic matter content of the A11 and A12 horizons is more than 10 percent. The A13 horizon is loamy fine sand or fine sand. The organic matter content in the A13 horizon ranges from 5 to 10 percent. The sulfur content of the A horizon is less than 0.75 percent and the *n* value is more than 2. Reaction before drying ranges from neutral to mildly alkaline; after drying, it ranges from very strongly acid to medium acid. The thickness of the A horizon ranges from 10 to 16 inches.

The C horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 2 or less, with or without mottles in shades of gray, yellow, or red. The texture is fine sand or loamy fine sand. The organic matter content is less than 5 percent. The sulfur content is more than 0.75 percent and the *n* value ranges from 0.7 to 2.0. Soil reaction ranges from slightly acid to mildly alkaline; after drying, it ranges from extremely acid to medium acid. The thickness of the C horizon ranges from 4 to 15 inches.

The IICr horizon has hue of 10YR, value of 4 to 7, and chroma of 1 or 2. Hard limestone fragments occur randomly throughout the horizon and make up about 20 to 35 percent of the volume. As many as three solution holes are in some pedons. These holes are filled with loamy fine sand and hard limestone fragments.

Immokalee series

The Immokalee series is a member of the sandy, siliceous, hyperthermic family of Arenic Haplaquods. It consists of poorly drained, moderately permeable soils that formed in sandy marine sediment. These nearly level soils are in broad flatwood areas. Slopes are less than 2 percent. The water table is at a depth of less than 10 inches for a period of 2 months in most years and is at a depth of 10 to 40 inches for a period of more than 8 months each year. It recedes to a depth of more than 40 inches during very dry seasons.

Immokalee soils are geographically closely associated with Adamsville, Basinger, Myakka, Narcoossee, Smyrna, Pomona, and Pompano soils. Adamsville and Narcoossee soils are on slightly higher ridges on the landscape and are somewhat poorly drained. In addition, Adamsville soils do not have a spodic horizon. Basinger and Pompano soils are on slightly lower landscapes and do not have a spodic horizon. Myakka, Smyrna, and Pomona soils differ by having a spodic horizon within 30 inches of the surface. Pomona soils also have an argillic horizon beneath the spodic horizon.

Typical pedon of Immokalee fine sand, in a wooded area, 0.5 mile north of U.S. Highway 98, 1.25 miles west of Hillsborough River Bridge, NW1/4NE1/4 sec. 28, T. 25 S., R. 22 E.

A1—0 to 4 inches; very dark gray (10YR 3/1) fine sand; weak fine granular structure; very friable; many fine and few medium roots; common uncoated sand grains; strongly acid; gradual wavy boundary.

A21—4 to 16 inches; gray (10YR 5/1) fine sand; single grain; loose; few medium roots; few fine carbon fragments; medium acid; gradual wavy boundary.

A22—16 to 33 inches; white (10YR 8/1) fine sand; common medium distinct very dark gray (10YR 3/1) and dark grayish brown (10YR 4/2) mottles; single grain; loose; few medium roots; black (10YR 2/1) streaks along root channels; medium acid; abrupt irregular boundary.

B21h—33 to 37 inches; dark reddish brown (5YR 3/2) fine sand; massive in place, parting to weak medium subangular blocky structure when disturbed; friable; sand grains well coated with colloidal organic materials; strongly acid; gradual wavy boundary.

B22h—37 to 45 inches; dark reddish brown (5YR 3/3) fine sand; massive in place, parting to weak medium subangular blocky structure when disturbed; friable; few scattered dark reddish brown (5YR 2/2) firm to very firm areas; sand grains moderately coated with colloidal organic materials; strongly acid; gradual wavy boundary.

B3—45 to 62 inches; dark brown (7.5YR 4/2) fine sand; single grain; loose; few small areas slightly firm; strongly acid; gradual wavy boundary.

C—62 to 80 inches; very pale brown (10YR 7/3) fine sand; single grain; loose; few fine faint yellowish brown streaks; medium acid.

Reaction ranges from medium acid to very strongly acid throughout. The texture is fine sand or sand throughout, except for the A1 horizon, which has a texture of fine sand.

The A1 or Ap horizon has hue of 10YR, value of 2 or 3, and chroma of 1; or it has hue of 10YR, value of 4, and chroma of 2; or it is neutral and has value of 2 to 4. Uncrushed, the horizon is a mixture of white sand grains and black organic material having a salt-and-pepper appearance. The thickness of the A1 or Ap horizon ranges from 4 to 8 inches.

The A2 horizon has hue of 10YR, value of 5 to 8, and chroma of 1 or 2. In some pedons, gray, brown, and yellow mottles are in this horizon. The total thickness of the A horizon ranges from 30 to 45 inches.

The Bh horizon has hue of 5YR, value of 2, and chroma of 1 or 2; or it has hue of 5YR, value of 3, and chroma of 2 or 3; or it has hue of 7.5YR, value of 3, and chroma of 2; or it has hue of 10YR, value of 2, and chroma of 1 or 2. The hue may be 10YR, the value 3, and the chroma 3 if the sand grains are well coated with colloidal organic matter.

The B3 horizon has hue of 10YR, value of 3 to 5, and chroma of 3 or 4; or it has hue of 7.5YR, value of 4, and chroma of 2.

Where present, the C horizon has hue of 10YR, value of 4 to 6, and chroma of 1 or 2; or it has hue of 10YR, value of 7, and chroma of 3 or 4, with or without mottles in shades of brown, yellow, or gray.

Jonesville series

The Jonesville series is a member of the loamy, siliceous, hyperthermic family of Arenic Hapludalfs. It consists of well drained, moderately to moderately slowly permeable soils that formed in sandy and loamy marine sediment over limestone. These nearly level to gently sloping soils are in small areas on upland ridges. The water table is at a depth greater than 72 inches during most years. Slopes are smooth to concave and range from 0 to 5 percent.

Jonesville soils are geographically closely associated with Candler, Paola, and Tavares soils. All of the associated soils are on about the same position on the landscape as Jonesville soils and differ by not having limestone within a depth of 80 inches. In addition, Candler and Paola soils are excessively drained and Tavares soils are moderately well drained.

Typical pedon of Jonesville fine sand, in a wooded area, 1.3 miles east of U.S. Highway 19 and 20 feet north of Fivay Road, SW1/4SE1/4 sec. 35, T. 24 S., R. 16 E.

A1—0 to 4 inches, dark gray (10YR 4/1) fine sand; single grain; loose; common fine and medium roots; slightly acid; gradual smooth boundary.

A21—4 to 10 inches; gray (10YR 6/1) fine sand; single grain; loose; common fine and medium roots; slightly acid; gradual smooth boundary.

A22—10 to 16 inches; light gray (10YR 7/1) fine sand; single grain; loose; common fine and medium roots; cyclic thickness is 2 to 8 inches; slightly acid; clear wavy boundary.

A3—16 to 22 inches; light yellowish brown (10YR 6/4) fine sand; single grain; loose; common fine and medium roots; cyclic thickness is 0 to 8 inches; slightly acid; clear wavy boundary.

B2t—22 to 28 inches; brownish yellow (10YR 6/6) sandy clay loam; common medium distinct yellowish brown (10YR 5/4) mottles; moderate medium subangular blocky structure; friable; common fine and medium roots; sand grains are coated and bridged with clay; neutral; abrupt irregular boundary.

IICr—28 to 38 inches; white (10YR 8/1) weathered limestone soft enough to be cut with spade; massive; firm; few fine and medium fragments of limestone; cyclic thickness is 4 to 24 inches; moderately alkaline; calcareous; abrupt irregular boundary.

IIIR—38 inches; limestone.

The thickness of the solum and the depth to soft, weathered limestone in more than one-half of the pedon are 23 to 40 inches. Within the pedon, thickness ranges to about 80 inches in solution holes.

The A1 horizon has hue of 10YR, value of 3 or 4, and chroma of 2 or less. Its thickness ranges from 3 to 5 inches. The A2 horizon has hue of 10YR, value of 4 through 8, and chroma of 2 or less. The texture is fine sand or sand. The thickness is 10 to 35 inches. Reaction in the A horizon ranges from strongly acid through slightly acid.

The A3 horizon is cyclic and discontinuous. Where present, it has hue of 10YR or 7.5YR, value of 4 through 6, and chroma of 3 through 8. The texture is fine sand or sand. Reaction ranges from strongly acid through slightly acid. The thickness of the A3 horizon ranges from 0 to 8 inches.

The Bt horizon has hue of 10YR or 7.5YR, value of 5, and chroma of 4; or it has hue of 10YR, value of 6, and chroma of 6 or 8. The texture is fine sandy loam or sandy clay loam. Reaction ranges from neutral to mildly alkaline.

The IICr horizon is soft limestone in hue of 10YR, value of 7 or 8, and chroma of 1 or 2. Hard limestone fragments and boulders occur randomly throughout the horizon and range from few to many.

Kanapaha series

The Kanapaha series is a member of the loamy, siliceous, hyperthermic family of Grossarenic Paleaquults. It consists of poorly drained, moderately slowly permeable soils that formed in thick beds of sandy and loamy marine sediment. These nearly level to gently sloping soils are in low areas of the uplands. Slopes are smooth to concave and range from 0 to 5 percent. In most years, under natural conditions, the water table is at a depth of less than 10 inches for 1 to 3 months and between depths of 10 and 40 inches for 3 to 4 months. It is at a depth greater than 40 inches during drier periods.

Kanapaha soils are geographically closely associated with Arredondo, Blichton, Nobleton, and Sparr soils. Blichton soils are on about the same landscape position but have an A horizon 20 to 40 inches thick. Nobleton and Sparr soils are on slightly higher positions and are better drained. Nobleton soils also have an A horizon 20 to 40 inches thick and a sandy clay texture in the lower part of the Btg horizon.

Typical pedon of Kanapaha fine sand, in a pasture, about 6.5 miles west of Florida Highway 581 and about 6.1 miles south of the Pasco-Hernando County line, along an abandoned power line, NE1/4NE1/4 sec. 16, T. 24 S., R. 19 E.

A1—0 to 6 inches; very dark gray (10YR 3/1) fine sand; weak medium granular structure; very friable; many fine and medium roots; strongly acid; clear smooth boundary.

A21—6 to 13 inches; light brownish gray (10YR 6/2) fine sand; few fine faint very dark gray mottles; single grain; loose; many fine and medium roots; strongly acid; clear wavy boundary.

A22—13 to 45 inches; light gray (10YR 7/1) fine sand; loose; few fine roots; strongly acid; gradual wavy boundary.

A23—45 to 72 inches; white (10YR 8/1) fine sand; loose; strongly acid; clear wavy boundary.

B2tg—72 to 80 inches; light brownish gray (10YR 6/2) fine sandy loam; common medium distinct yellowish brown (10YR 5/4, 5/6) mottles; weak medium subangular blocky structure; friable; strongly acid.

Reaction is very strongly acid or strongly acid in all horizons. The content of plinthite, weathered phosphatic pebbles, and iron concretions ranges from 0 to 5 percent in the solum.

The A1 or Ap horizon has hue of 10YR, value of 3 to 6, and chroma of 1; or it has hue of 10YR, value of 5, and chroma of 2. The thickness of the A1 or Ap horizon ranges from 4 to 8 inches. The A2 horizon has hue of 10YR, value of 5 to 8, and chroma of 1; or it has hue of 10YR, value of 6 or 7, and chroma of 2. In some pedons, few to common yellowish brown, light yellowish brown, and dark grayish brown mottles or dark gray, grayish brown, or very dark gray streaks occur in this horizon. The combined thickness of the A horizon ranges from 40 to 78 inches. The texture is sand or fine sand except for the A1 horizon, which is fine sand.

The B2tg horizon is neutral and has value of 4 through 6; or it has hue of 10YR, value of 4 to 7, and chroma of 1; or it has hue of 10YR, value of 6 or 7, and chroma of 2. Few, common, or many mottles in shades of red, yellow, and brown are in this horizon. The B2tg horizon is sandy loam, sandy clay loam, or light sandy clay. In some pedons, a B3g horizon having texture of sandy loam or sandy clay loam is beneath the B2tg horizon. Color range of the B3g horizon is the same as that of the B2tg horizon.

In a few pedons, there is a Cg horizon. This horizon is neutral and has value of 4 to 6; or it has hue of 10YR, value of 4 to 7, and chroma of 1; or it has hue of 10YR, value of 7, and chroma of 2. This horizon is sandy loam or sandy clay loam with medium or large lenses or pockets of coarser or finer textured material.

Kendrick series

The Kendrick series is a member of the loamy, siliceous, hyperthermic family of Arenic Paleudults. It consists of well drained, moderately permeable soils that formed in thick beds of loamy marine sediment. These nearly level to sloping soils are on uplands. Slopes range from 0 to 8 percent. The water table is below a depth of 72 inches.

Kendrick soils are geographically closely associated with Arredondo, Blichton, Flemington, Variant, Lochloosa, Millhopper, Nobleton, and Sparr soils. Arredondo soils are on landscape positions similar to those of Kendrick soils, but differ by having an A horizon more than 40 inches thick. Blichton soils are at lower elevations, are poorly drained, and contain more than 5 percent plinthite. Flemington Variant soils are poorly drained and have an A horizon less than 20 inches thick. Lochloosa, Nobleton, and Sparr soils are somewhat poorly drained and are at lower elevations. Millhopper soils are moderately well drained and have an A horizon more than 40 inches thick.

Typical pedon of Kendrick fine sand, in a citrus grove, 0.2 mile west of Florida Highway 577 and 0.3 mile south of an unnamed grade road, NW1/4SE1/4 sec. I6, T. 24 S., R. 20 E.

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) fine sand; weak medium granular structure; friable; many fine and medium roots; slightly acid; clear wavy boundary.

A31—7 to 14 inches; yellowish brown (10YR 5/4) fine sand; common medium distinct brown (10YR 5/3) mottles; single grain; loose; many fine and medium roots; few carbon fragments; slightly acid; gradual wavy boundary.

A32—14 to 22 inches; light yellowish brown (10YR 6/4) fine sand; single grain; loose; many fine and medium roots; few scattered uncoated sand grains; few carbon fragments; slightly acid; clear smooth boundary.

A33—22 to 28 inches; brownish yellow (10YR 6/6) fine sand; single grain; loose; neutral; many fine and medium roots; clear wavy boundary.

B21t—28 to 32 inches; yellowish brown (10YR 5/4) sandy clay loam; moderate coarse prominent yellowish red (5YR 5/6) mottles; weak medium subangular blocky structure; friable; common fine and medium roots; medium acid; gradual wavy boundary.

B22t—32 to 46 inches; yellowish brown (10YR 5/8) sandy clay loam; moderate coarse prominent light reddish brown (2.5YR 6/4) and yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; slightly firm; few fine roots; common fine pore spaces; few weathered phosphatic pebbles; very strongly acid; gradual wavy boundary.

B23t—46 to 73 inches; brownish yellow (10YR 6/6) sandy clay loam; few faint pink and red mottles throughout the horizon, few fine and medium gray (10YR 6/1) mottles in the lower 6 to 8 inches of the horizon; weak medium subangular blocky structure; friable; few fine roots; few weathered phosphatic pebbles; very strongly acid; gradual wavy boundary.

C—73 to 80 inches; coarsely mottled very pale brown (10YR 8/3), reddish yellow (5YR 6/8), and pink (5YR 7/3) sandy clay loam; large lenses of white (5YR 8/1) fine sand and very fine sand in streaks; large distinct yellowish brown (10YR 5/6) and common medium distinct gray (10YR 6/1) mottles; few weathered phosphatic pebbles in lighter colored portions; moderate medium granular structure; few fine roots; very strongly acid.

The thickness of the solum is 60 inches or more. Reaction is very strongly acid or strongly acid in all horizons. In areas where lime has been added, the A horizon and upper part of the B2t horizon range to slightly acid or neutral. Plinthite is present in many pedons, but its concentration does not exceed 5 percent. Weathered phosphatic pebbles and iron concretions 2 to 10 millimeters in diameter make up 0 to 3 percent of the solum.

The A1 or Ap horizon has hue of 10YR, value of 2 to 5, and chroma of 1 or 2. The thickness ranges from 4 to 8 inches. The A3 horizon has hue of 10YR, value of 5 or 6, and chroma of 3 to 8. The texture of the A horizon is sand, fine sand, loamy sand, or loamy fine sand except for the Ap horizon, which is fine sand.

In a few pedons, a sandy loam B1 horizon having the same color range as the A3 horizon is present. The thickness of the B1 horizon ranges from 0 to 5 inches.

The B2t horizon has hue of 10YR, value of 4 or 5, and chroma of 3 to 8; or it has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 6 or 8. The lower part of this horizon commonly is coarsely mottled with gray and red. The texture of the horizon is sandy loam, fine sandy loam, or sandy clay loam. In a few pedons, the texture of the lower part of the B2t horizon is sandy clay.

The C horizon is highly variable. It has hue of 10YR, value of 5 to 7, and chroma of 1; or it has hue of 10YR, value of 7 or 8, and chroma of 3 or 4; or it has hue of 5YR, value of 6 to 8, and chroma of 3 to 8. The horizon is most commonly a mixture of these colors, with the 10YR colors predominating slightly. Texture is sandy clay loam or sandy loam, with thin and thick lenses and pockets of coarser or finer textured materials.

Lacoochee series

The Lacoochee series is a member of the siliceous, hyperthermic, shallow family of Spodic Psammaquents. It consists of poorly drained, moderately permeable soils that formed in sandy and loamy marine sediment overlying limestone. These nearly level soils are in low, broad tidal marsh areas. The water table fluctuates with the tide and the soil is flooded during normal high tides. Slopes are less than 2 percent.

Lacoochee soils are geographically closely associated with Aripeka, Homosassa, and Weekiwachee soils. None of these soils has an Aca horizon, which is typical of

Lacoochee soils. In addition, Aripeka soils have an argillic horizon within a depth of 20 inches. Homosassa soils have a thick, dark-colored A horizon. Weekiwachee soils have sapric material l6 to 40 inches thick. Lacoochee soils generally are at slightly higher elevations than the surrounding Homosassa or Weekiwachee soils.

Typical pedon of Lacoochee fine sandy loam, in a grassy area, approximately 0.5 mile south of Aripeka and 0.5 mile west of junction of Florida Highway 595 and Old Dixie Highway, NW1/4SE1/4 sec. 21, T. 24 S., R. 16 E.

A1ca—0 to 8 inches; gray (10YR 6/1) fine sandy loam; weak medium subangular blocky structure; friable; few fine roots; few small shell and hard limestone fragments; moderately alkaline; calcareous; clear wavy boundary.

A2g—8 to 11 inches; dark grayish brown (10YR 4/2) loamy fine sand; few fine faint streaks of light gray mottles; weak medium subangular blocky structure; friable; few fine roots; moderately alkaline; calcareous; clear wavy boundary.

B2—11 to 18 inches; brownish yellow (10YR 6/6) fine sand; few fine faint light brownish gray (10YR 6/2) and common medium distinct yellowish brown (10YR 5/6) mottles; single grain; loose; few fine roots; moderately alkaline; calcareous; abrupt irregular boundary.

IICr—18 to 36 inches; white (10YR 8/1) soft limestone; massive; firm; about 35 percent hard limestone fragments; most roots do not penetrate this layer but are turned at the upper boundary; moderately alkaline; calcareous; abrupt irregular boundary.

IIIR—36 inches; hard white limestone that can be chipped but not dug with a spade.

Few to common shells are in most pedons. Sulfur content is less than 0.75 percent throughout the profile. The depth to the IIIR horizon ranges from 20 to 40 inches.

The A1ca horizon is neutral or has hue of 10YR, value of 4 to 7, and chroma of 1 or less. The thickness of the A1ca horizon is less than 10 inches. The texture is fine sandy loam or loamy fine sand. Where texture is fine sandy loam, the depth to the IICr horizon is greater than 14 inches. Carbonates as calcium carbonate are more than 15 percent and commonly more than 45 percent.

The A2g horizon has hue of 2.5Y or 10YR, value of 4 to 6, and chroma of 2. The texture is loamy fine sand or fine sand. Reaction is neutral to moderately alkaline. The A2g horizon is 2 to 4 inches thick.

The B2 horizon has hue of 2.5Y or 10YR, value of 5 or 6, and chroma of 4 to 8. The texture is fine sand or loamy fine sand. Few to many gray mottles are in the B2 horizon. Reaction ranges from neutral to moderately alkaline. The thickness of the B2 horizon ranges from 5 to 15 inches.

The IICr horizon has hue of 10YR, value of 7 or 8, and chroma of l or 2. Hard limestone fragments occur randomly throughout the horizon and make up about 20 to 35 percent, by volume, of the horizon. As many as three solution holes are in this horizon in some pedons. These holes are filled with loamy fine sand and hard limestone fragments.

Lake series

The Lake series is a member of the hyperthermic, coated family of Typic Quartzipsamments. It consists of excessively drained, rapidly permeable soils on the uplands. These nearly level to sloping soils formed in beds of sandy marine, eolian, or fluvial sediment more than 7 feet thick. The water table is below a depth of 120 inches. Slopes range from 0 to 8 percent.

Lake soils are geographically closely associated with Arredondo, Astatula, Candler, Kendrick, Millhopper, Orlando, Sparr, and Tavares soils. Arredondo, Kendrick, Millhopper, and Sparr soils have an argillic horizon. In Astatula soils, silt and clay make up less than 5 percent of the soil between depths of 10 and 40 inches. Candler soils are in an uncoated family and have lamellae in the lower part of the C horizon. Orlando soils have an umbric epipedon and are well drained. Tavares soils are moderately well drained and are in an uncoated family.

Typical pedon of Lake fine sand, in a citrus grove, 0.3 mile west of Power Line Road, 500 feet south of Florida Highway 575, NW1/4SE1/4 sec. 28, T. 23 S., R. 21 E.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) fine sand; weak fine granular structure; very friable; many fine and medium roots; most sand grains thinly coated; strongly acid; clear wavy boundary.

C1—8 to 28 inches; yellowish brown (10YR 5/4) fine sand; single grain; loose; few fine roots; common dark gray streaks along old root channels; most sand grains moderately well coated; few large 3-inch-diameter light brownish gray krotovinas; few fine scattered pieces of carbon; very strongly acid; gradual wavy boundary.

C2—28 to 60 inches; yellowish brown (10YR 5/8) fine sand; single grain; loose; few fine and medium roots; most sand grains well coated; few small pockets uncoated sand grains; few scattered 1/4-inch-diameter irregularly shaped iron pebbles; very strongly acid; gradual wavy boundary.

C3—60 to 80 inches; brownish yellow (10YR 6/8) fine sand; single grain; loose; sand grains well coated; few scattered 1/4- to 1-inch-diameter irregularly shaped iron pebbles; very strongly acid.

The thickness of fine sand is more than 80 inches. A few scattered iron pebbles ranging from 1/4 inch to 3 inches in diameter are in many pedons, but they make up less than 5 percent of the volume. Reaction is very strongly to strongly acid throughout the pedon.

The A1 or Ap horizon has hue of 10YR, value of 3 through 5, and chroma of 2 or 3. The C horizon has hue of 2.5YR through 10YR, value of 4 through 6, and chroma of 4 through 8. The texture is fine sand throughout. In lighter colored horizons of some pedons, a few uncoated sand grains may occur, either individually or collectively in small pockets, but these are not indicative of wetness. The content of silt and clay ranges between 5 and 10 percent at depths between 10 and 40 inches. In a few pedons, thin discontinuous lamellae are below a depth of 60 inches.

Lochloosa series

The Lochloosa series is a member of the loamy, siliceous, hyperthermic family of Aquic Arenic Paleudults. It consists of somewhat poorly drained, moderately permeable soils that formed in thick deposits of sandy and loamy sediment of marine origin. These nearly level to gently sloping soils are in the uplands. The water table is at a depth of 30 to 60 inches for a period of 1 to 4 months during most years. It rises to a depth of about 15 inches for 1 to 3 weeks during rainy periods. It recedes to a depth of more than 60 inches in the dry season. Wetness on slopes is caused by seepage from higher lying areas. Slopes range from 0 to 5 percent.

The Lochloosa soils in this survey area are taxadjuncts to the Lochloosa series because they have slightly less clay in the lower part of the B horizon than is required for the series. This difference does not alter the use and behavior of the soils.

Lochloosa soils are geographically closely associated with Blichton, Kendrick, and Sparr soils. Blichton soils are poorly drained and are at lower elevations. Kendrick soils are well drained and are at higher elevations. Sparr soils have an A horizon 40 to 79 inches thick.

Typical pedon of Lochloosa fine sand, in an orange grove, approximately 0.1 mile south of dirt road and 0.3 mile east of Florida Highway 577, NE1/4SE1/4 sec. 16, T. 24 S., R. 20 E.

Ap—0 to 7 inches; very dark gray (10YR 3/1) fine sand; weak medium granular structure; very friable; few fine roots; strongly acid; clear smooth boundary.

A21—7 to 17 inches; brown (10YR 5/3) fine sand; single grain; loose; few fine and medium roots; strongly acid; clear wavy boundary.

A22—17 to 36 inches; very pale brown (10YR 7/3) fine sand; single grain; loose; few fine and medium roots; strongly acid; clear wavy boundary.

B21t—36 to 42 inches; yellowish brown (10YR 5/4) fine sandy loam; common medium distinct strong brown (7.5YR 5/8) and light gray (10YR 7/2) mottles; weak medium granular structure; very friable; few fine roots; sand grains coated and bridged with clay; strongly acid; gradual wavy boundary.

B22t—42 to 63 inches; yellowish brown (10YR 5/8) sandy clay loam; common medium distinct light gray (10YR 7/2), gray (10YR 6/1), and yellowish brown (10YR 5/6) and few fine faint yellowish red mottles; weak medium subangular blocky structure; firm; thin discontinuous clay films on surface of peds; strongly acid; clear wavy boundary.

B23tg—63 to 72 inches; light gray (10YR 6/1) sandy clay loam; common medium distinct reddish brown (2.5YR 4/4), yellowish red (5YR 4/6), and strong brown (7.5YR 5/8) mottles; common discontinuous clay films; about 3 percent plinthite; strongly acid; gradual smooth boundary.

B24tg—72 to 80 inches; gray (10YR 6/1) sandy clay loam; many medium distinct yellowish brown (10YR 5/6) and few fine distinct red (2.5YR 4/6) mottles; weak medium subangular blocky structure; firm; strongly acid.

The thickness of the solum is 60 inches or more. Reaction is very strongly acid or strongly acid in all horizons, except where lime has been applied. The content of weathered phosphatic pebbles, or nodules of ironstone 1/4 inch to 3 inches in diameter, ranges from 0 to 5 percent in the solum. Plinthite occurs in the Bt in some pedons and ranges from 1 to 5 percent.

The A1 or Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 1; or it has hue of 10YR, value of 5, and chroma of 2; or it is neutral and has value of 4 or 5. The thickness of the A1 or Ap horizon ranges from 5 to 8 inches.

The A2 horizon has hue of 10YR, value of 5 to 7, and chroma of 3 or 4, with or without mottles in shades of brown, yellow, and gray. The total thickness of the A horizon ranges from 20 to 40 inches. The texture of the A2 horizon is fine sand or loamy fine sand.

The B21t horizon has hue of 10YR, value of 5, and chroma of 3 to 8; or it has hue of 10YR, value of 6, and chroma of 3 to 6; or it has hue of 10YR, value of 7, and chroma of 3 or 4, with a few grayish or yellow mottles. The texture is loamy sand, loamy fine sand, sandy loam, or fine sandy loam. This horizon is absent in some pedons.

The B22t horizon has color and mottling similar to those of the B21t horizon, but has few to common mottles in shades of red. Texture is sandy clay loam or sandy loam.

The B23tg horizon, and the B24tg horizon where present, has hue of 10YR, value of 5 to 7, and chroma of 1; or it has hue of 10YR, value of 5 or 6, and chroma of 2; or it is neutral and has value of 5 to 7. The texture of these horizons is sandy loam or sandy clay loam. A B3g horizon is present in some pedons. It has color similar to that of the B23tg horizon. It has texture of sandy clay loam or sandy clay, with or without pockets and lenses of finer or coarser textured material. The clay content of the upper 20 inches of the Btg horizon is 15 to 30 percent.

Micanopy series

The Micanopy series is a member of the fine, mixed, hyperthermic family of Aquic Paleudalfs. It consists of somewhat poorly drained, slowly permeable soils that formed in thick beds of loamy and clayey marine sediment. These gently sloping soils are in small upland areas. Slopes range from 2 to 5 percent. In most years, under natural conditions, the water table is perched at a depth of about 18 to 30 inches for 1 to 3 months. It is below 30 inches for the rest of the year and may be below a depth of 60 inches during extended dry periods.

The Micanopy soils in this survey area are taxadjuncts to the Micanopy series because they have slightly less clay in the lower part of the B horizon than is required for the series. This difference does not alter the use and behavior of the soils.

Micanopy soils are geographically closely associated with Blichton, Flemington Variant, Kendrick, Lochloosa, and Nobleton soils. All except Flemington Variant soils have an argillic horizon at a depth below 20 inches. Flemington Variant soils are similar, but are poorly drained. Blichton, Flemington Variant, Lochloosa, and Nobleton soils are on lower positions on the landscape. Kendrick soils are on higher positions on the landscape and are well drained.

Typical pedon of Micanopy fine sand, in native pasture, 0.3 mile west of Florida Highway 581, 80 feet north of east-west trail road, SW1/4NW1/4 sec. 24, R. 19 E., T. 24 S.

Ap—0 to 6 inches; very dark gray (10YR 3/1) fine sand; moderate medium and coarse granular structure; very friable; few fine and medium roots; medium acid; gradual wavy boundary.

A2—6 to 9 inches; brown (10YR 5/3) fine sand; few fine faint dark yellowish brown mottles; moderate medium granular structure; friable; few fine and medium roots; medium acid; gradual wavy boundary.

B21t—9 to 15 inches; brown (10YR 5/3) sandy clay loam; common medium distinct dark reddish brown (2.5YR 3/4) mottles throughout, and common medium distinct grayish brown (10YR 5/2) mottles in lower 3 inches; weak medium subangular blocky structure; firm; few medium roots; sand grains coated and bridged with clay; strongly acid; gradual wavy boundary.

B22tg—15 to 44 inches; gray (N 5/0) clay; many coarse prominent red (2.5YR 4/6) and common medium distinct light yellowish brown (10YR 6/4) mottles; moderate medium subangular blocky structure; firm; few medium roots in upper 10 inches of horizon; discontinuous clay films on ped faces; many clean sand grains on prism faces; very strongly acid; gradual wavy boundary.

B23tg—44 to 58 inches; gray (10YR 5/1) sandy clay loam; many coarse prominent red (10R 4/8, 2.5YR 4/6) and dark yellowish brown (10YR 4/4) and few fine distinct yellowish brown (10YR 5/6) and brownish yellow (10YR 6/6) mottles; moderate medium subangular blocky structure; very firm; slightly sticky and plastic in some parts; discontinuous clay films on faces of peds; many stripped sand grains on prism faces; strongly acid; gradual wavy boundary.

B24tg—58 to 69 inches; mixed gray (10YR 5/1), grayish brown (10YR 5/2), light brownish gray (10YR 6/2), light gray (10YR 7/2), and white (10YR 8/1) sandy clay loam; moderate medium subangular blocky structure; very firm; some parts slightly sticky and plastic; discontinuous clay films on ped faces; many stripped sand grains on prism faces; strongly acid; gradual wavy boundary.

B3g—69 to 89 inches; mixed light gray (10YR 6/1, 7/2), gray (5Y 5/1), and greenish gray (5G 6/1) sandy clay loam; many coarse prominent dusky red (10R 3/4) and red (2.5YR 4/6) mottles; massive; very firm; some parts slightly sticky and plastic; discontinuous clay films on faces of peds; few slickensides; strongly acid.

The thickness of the solum is 60 inches or more. Reaction ranges from very strongly acid to medium acid in all horizons. The content of plinthite is less than 5 percent in the Bt horizon.

The Ap or A1 horizon has hue of 10YR, value of 2 to 5, and chroma of 1 or 2; or it is neutral and has value of 2 to 5. It is 4 to 8 inches thick. The A2 horizon has hue of 10YR, value of 4 or 5, and chroma of 3; or it has hue of 10YR, value of 6, and chroma of 3 or 4. The total thickness of the A horizon is less than 20 inches. The texture is fine sand.

The B2t horizon has hue of 10YR, value of 5, and chroma of 3 to 6 or hue of 10YR, value of 6 and chroma of 3 or 4, with mottles in shades of gray, brown, and red. The texture of the B2t horizon is sandy clay loam or sandy clay.

The B2tg horizon has hue of 10YR, value of 5 or 6, and chroma of 1; or it is neutral and has value of 5 or 6. It is sandy clay or clay, or a mixture of these textures. In some pedons, the lower part of the B2tg horizon texture is sandy clay loam. There are common to many medium or coarse distinct or prominent mottles in shades of gray, yellow, brown, and red in the horizon.

The B3g horizon has hue of 10YR or 5Y, value of 5 to 7, and chroma of 1 or 2; or it is neutral and has value of 5 to 7. It is sandy clay or sandy clay loam. Mottles in shades of yellow, brown, and red are commonly present.

The C horizon is present in most pedons and is below a depth of 60 inches. It has hue of 10YR or 5G, value of 5 to 7, and chroma of 1; or it has hue of 5Y, value of 5 to 7, and chroma of l or 2; or it is neutral and has value of 5 to 7. This horizon is sandy clay or sandy clay loam, and it commonly contains mottles of red and brown.

Millhopper series

The Millhopper series is a member of the loamy, siliceous, hyperthermic family of Grossarenic Paleudults. It consists of moderately well drained, moderately permeable soils that formed in thick beds of sand and loamy marine sediment. These nearly level to gently sloping soils are on upland areas. Slopes range from 0 to 5 percent. The water table is perched above the argillic horizon if the soil is in a natural, unaltered state. It is at a depth of 40 to 60 inches for 1 to 4 months and at a depth of 60 to 72 inches for 2 to 4 months in most years. In a very wet year, it may be at a depth of 30 to 40 inches for a cumulative period of 1 to 3 weeks.

Millhopper soils are geographically closely associated with Arredondo, Candler, Kendrick, Nobleton, Orlando, Sparr, and Tavares soils. Arredondo and Sparr soils differ by being, respectively, well drained and somewhat poorly drained. Candler soils are excessively drained and have discontinuous lamellae below a depth of 50 inches. Kendrick and Nobleton soils have an argillic horizon within 40 inches of the soil surface. Orlando and Tavares soils are sandy to a depth of 80 inches or more.

Typical pedon of Millhopper fine sand, in an undisturbed area, 0.9 mile south of the Pasco-Hernando county line, 2 miles east of U.S. Highway 41, and 600 feet northeast of the east end of Bowman Road, SW1/4SW1/4 sec. 5, T. 24 S., R. 19 E.

A11—0 to 3 inches; dark gray (10YR 4/1) fine sand; weak fine granular structure; very friable; many fine roots; scattered small pieces of organic matter; strongly acid; clear wavy boundary.

A12—3 to 7 inches; grayish brown (10YR 5/2) fine sand; single grain; loose; few medium and coarse roots; few scattered specks and small pieces of carbon; strongly acid; clear wavy boundary.

A21—7 to 27 inches; very pale brown (10YR 7/4) fine sand; single grain; loose; few fine faint yellowish brown and pale brown mottles; few medium and coarse roots; few scattered specks and small pieces of carbon; few nearly vertical grayish brown krotovinas about 1/2 to 2 inches in diameter; few scattered, irregularly shaped iron concretions about 1/2 to 1 inch in diameter; medium acid; diffuse wavy boundary.

A22—27 to 42 inches; very pale brown (10YR 7/4) fine sand; few fine faint yellowish brown and light brownish gray mottles; single grain; loose; few medium and coarse roots; medium acid; diffuse wavy boundary.

A23—42 to 59 inches; light yellowish brown (10YR 6/4) fine sand; common medium distinct yellowish brown (10YR 5/6, 5/8) and strong brown (7.5YR 5/8) mottles; single grain; loose; few medium and coarse roots; common scattered uncoated sand grains; few scattered, irregularly shaped iron concretions about 1/2 to 1 inch in diameter; medium acid; gradual irregular boundary.

B21t—59 to 64 inches; yellowish brown (10YR 5/6) fine sandy loam; common medium distinct strong brown (7.5YR 5/8), yellowish red (5YR 5/8), and light gray (10YR 7/2) mottles; weak medium subangular blocky structure; very friable; most sand grains coated and bridged with clay; strongly acid; gradual wavy boundary.

B22tg—64 to 80 inches; gray (10YR 6/1) sandy clay loam; many coarse prominent red (2.5YR 4/8) and common medium distinct yellowish red (5YR 5/6), strong brown (7.5YR 5/6, 5/8), and yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; redder areas are slightly brittle; sand grains coated and bridged with clay; few slickensides; strongly acid.

Reaction ranges from very strongly acid to slightly acid in the A horizon and from very strongly acid to medium acid in the Bt horizon. A few scattered ironstone and leached phosphatic limestone nodules and concretions ranging from 1/4 to 3 inches in diameter occur in many pedons but make up less than 5 percent, by volume, of the horizon.

The A1 or Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. The A2 horizon has hue of 10YR, value of 5 to 7, and chroma of 3 to 8 in the upper part and hue of 10YR, value of 6 to 8, and chroma of 2 to 4 in the lower part. Mottles of brown and yellow range from none to common. Gray and red or strong brown mottles, indicative of wetness, are below a depth of 40 inches. Small pockets and streaks of light gray or white uncoated sand grains are throughout some pedons. The total thickness of the A horizon ranges from 40 to 75 inches but most commonly is between 55 and 70 inches. The texture of the A horizon is sand, fine sand, or loamy fine sand, except for the A1 or Ap horizon, which is fine sand.

The B21t horizon has hue of 10YR, value of 5 or 6, and chroma of 3 to 6 or hue of 10YR, value of 7, and chroma of 4 to 6, with or without mottles of gray, yellow, and brown. Texture of the B21t horizon is loamy sand, loamy fine sand, or fine sandy loam.

The B22tg horizon has hue of 10YR, value of 5 to 7, and chroma of 1 to 4, with mottles in shades of gray, yellow, red, and brown, or it is a mixture of these colors. Horizons having a matrix color of gray commonly are at a depth of more than 55 inches. The texture of the B22tg horizon is sandy loam or sandy clay loam.

In a few areas, a B3g horizon is below the B22tg horizon. The B3g horizon is neutral and has value of 5 to 7; or it has hue of 10YR, value of 5 through 7, and chroma of 2 or less. It commonly is mottled in various shades of gray, yellow, and brown. The texture of the B3g horizon is sandy loam or sandy clay loam.

Myakka series

The Myakka series is a member of the sandy, siliceous, hyperthermic family of Aeric Haplaquods. It consists of poorly drained, moderately to moderately rapidly permeable soils. These nearly level soils are in broad flatwoods areas. Slopes are less than 2 percent. The water table is at a depth of less than 10 inches for 1 to 4 months in most years, and it recedes to a depth of more than 40 inches during very dry seasons.

Myakka soils are geographically closely associated with Adamsville, Sellers, Narcoossee, Pomona, and Smyrna soils. Adamsville and Narcoossee soils are on ridges, slightly higher on the landscape than Myakka soils, and are somewhat poorly drained. Adamsville soils also do not have a spodic horizon. Sellers soils are in depressions and do not have a spodic horizon. Pomona soils have an argillic horizon beneath the spodic horizon. Smyrna soils have a spodic horizon within 20 inches of the surface and a solum less than 40 inches thick.

Typical pedon of Myakka fine sand, in a wooded area, approximately 20 feet north of pipeline, SE1/4NW1/4 sec. 28, T. 25 S., R. 19 E.

A11—0 to 3 inches; black (10YR 2/1) rubbed fine sand; salt-and-pepper appearance if undisturbed; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; clear smooth boundary.

A12—3 to 6 inches; dark gray (10YR 4/1) fine sand; single grain; loose; many fine and medium roots; very strongly acid; gradual wavy boundary.

A21—6 to 10 inches; gray (10YR 6/1) fine sand; single grain; loose; many fine and medium roots; very strongly acid; gradual wavy boundary.

A22—10 to 27 inches; light gray (10YR 7/1) fine sand; single grain; loose; many fine and medium roots; very strongly acid; clear smooth boundary.

B21h—27 to 30 inches; very dark gray (5YR 3/1) fine sand; common medium distinct black (10YR 2/1) mottles; moderate medium granular structure; friable; common fine roots; sand grains are well coated with organic matter; medium acid; clear wavy boundary.

B22h—30 to 38 inches; dark reddish brown (5YR 3/4) fine sand; weak fine granular structure; very friable; common fine roots; sand grains are well coated with organic matter; medium acid; clear wavy boundary.

B3—38 to 48 inches; dark brown (10YR 4/3) fine sand; single grain; loose; few fine roots; medium acid; gradual wavy boundary.

C—48 to 80 inches; brown (10YR 5/3) fine sand; single grain; loose; slightly acid.

Reaction ranges from very strongly acid to slightly acid throughout. The texture is fine sand or sand throughout, except for the A1 horizon, which is fine sand.

When crushed or rubbed, the A1 or Ap horizon has hue of 10YR, value of 2 to 4, and chroma of 1; or it is neutral and has value of 2 to 4. Uncrushed, the horizon has a salt-and-pepper appearance.

The A2 horizon has hue of 10YR, value of 5 to 8, and chroma of 1; or it has hue of 10YR, value of 8, and chroma of 2; or it has hue of 2.5Y, value of 8, and chroma of 2; or it is neutral and has value of 6 through 8. In some pedons, this horizon has gray, yellow, and brown mottles. The total thickness of the A horizon ranges from 20 to 30 inches.

The B2h horizon has hue of 5YR, value of 2, and chroma of 1 or 2; or it has hue of 5YR, value of 3, and chroma of 1 to 4; or it has hue of 7.5YR, value of 3, and chroma of 2; or it has hue of 10YR, value of 2, and chroma of 1 or 2; or it is neutral and has value of 2. Colors can range to hue of 10YR, value of 3, and chroma of 3 if the sand grains are well coated with colloidal organic materials.

The B3 horizon has hue of 10YR, value of 3 to 6, and chroma of 3; or it has hue of 10YR, value of 3 to 5, and chroma of 4; or it has hue of 7.5YR, value of 4 or 5, and chroma of 4. In some pedons, a B3&Bh horizon is present. The B3 part of that horizon has colors similar to those of the B3 horizon, and the Bh part has colors similar to those of the B2h horizon.

The C horizon has hue of 10YR, value of 4, and chroma of 2; or it has hue of 10YR, value of 5, and chroma of 1 to 3; or it has hue of 10YR, value of 6, and chroma of 2; or it has hue of 10YR, value of 7, and chroma of 3 or 4; or it has hue of 7.5YR, value of 4, and chroma of 4 or 5. Mottles of brown, yellow, or gray may be present.

Narcoossee series

The Narcoossee series is a member of the sandy, siliceous, hyperthermic family of Entic Haplohumods. It consists of somewhat poorly drained, moderately rapidly permeable soils that formed in sandy marine sediment. These nearly level soils are on low knolls and ridges in the flatwoods. Slopes are less than 2 percent. The water table is at a depth of 2 to 3.5 feet for 4 to 6 months in most years. During extended dry periods, the water table recedes to a depth greater than 60 inches. During the wet season, after heavy rains, the water table may briefly rise above a depth of 2 feet.

Narcoossee soils are geographically closely associated with Adamsville, Basinger, Myakka, Smyrna, and Tavares soils. Adamsville soils do not have a spodic horizon. Basinger soils are poorly drained and have a Bh&A horizon. Myakka and Smyrna soils are poorly drained. Tavares soils are at higher elevations, are moderately well drained, and do not have a spodic horizon.

Typical pedon of Narcoossee fine sand, in a wooded area, 100 feet north of pipeline, 0.4 mile southwest of West Coast Regional Water Supply Authority pumping station, SE1/4NE1/4 sec. 29, T. 25 S., R. 19 E.

A1—0 to 3 inches; very dark gray (10YR 3/1) fine sand; weak medium granular structure; very friable; many fine and medium roots; very strongly acid; clear wavy boundary.

A2—3 to 9 inches; grayish brown (10YR 5/2) fine sand; few fine faint white mottles; single grain; loose; many fine and medium roots; strongly acid; clear wavy boundary.

Bh—9 to 12 inches; dark brown (7.5YR 3/2) fine sand; common medium distinct dark brown (10YR 3/3) mottles; weak medium subangular blocky structure parting to single grain if disturbed; very friable; common fine roots; most sand grains are coated with organic matter; medium acid; clear wavy boundary.

B3—12 to 18 inches; dark gray (10YR 4/1) fine sand; single grain; loose; common fine roots; medium acid; gradual wavy boundary.

C1—18 to 28 inches; light brownish gray (10YR 6/2) fine sand; common medium distinct dark grayish brown (10YR 4/2) mottles; single grain; loose; common fine roots; strongly acid; gradual wavy boundary.

C2—28 to 37 inches; very pale brown (10YR 7/3) fine sand; single grain; loose; few fine roots; medium acid; gradual wavy boundary.

C3—37 to 62 inches; light yellowish brown (10YR 6/4) fine sand; many medium prominent strong brown (7.5YR 5/6) and common medium prominent yellowish red (5YR 5/6) mottles; single grain; loose; few fine roots; few hard iron concretions up to 1 inch in diameter; medium acid; gradual wavy boundary.

C4—62 to 75 inches; pale brown (10YR 6/3) fine sand; common medium faint dark grayish brown mottles; single grain; loose; medium acid; gradual wavy boundary.

Reaction ranges from extremely acid to medium acid in all horizons.

The A1 or Ap horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. The A2 horizon has hue of 10YR, value of 4 to 7, and chroma of 1 or 2. The total thickness of the A horizon ranges from 9 to 25 inches.

The Bh horizon has hue of 10YR, value of 2, and chroma of 1; or it has hue of 7.5YR, value of 3, and chroma of 2; or it has hue of 5YR, value of 3, and chroma of 2 or 3. Some pedons have a B22h horizon. The B22h horizon has hue of 7.5YR, value of 3 or 4, and chroma of 2 to 4; or it has hue of 5YR, value of 3 or 4, and chroma of 3 or 4. The Bh horizon ranges from 3 to 5 inches in total thickness.

The B3 horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 4; or it has hue of 7.5YR, value of 4, and chroma of 4; or it has hue of 5YR, value of 4, and chroma of 6. In some pedons, this horizon has few or common fine or medium mottles in shades of gray, yellow, and brown. Some pedons also have 1/8- to 1/4-inch diameter pockets of dark gray or gray fine sand in this horizon.

The C1 horizon has hue of 10YR, value of 6 to 8, and chroma of 1 to 4. The C2 horizon has hue of 10YR, value of 6 to 8, and chroma of 2 or 3. The C3 and C4 horizons have hue of 10YR, value of 4 to 8, and chroma of 1 to 4. The C horizon has few to common mottles in shades of gray, brown, and yellow. In some pedons, the sand grains in the lower part of the C horizon are coated with colloidal organic materials and form a second sequence of Bh horizons. These have colors similar to those of the Bh horizon.

Newnan series

The Newnan series is a member of the sandy, siliceous, hyperthermic family of Ultic Haplohumods. It consists of somewhat poorly drained, slowly to moderately slowly permeable soils that formed in thick beds of sandy and loamy marine sediment. These nearly level to gently sloping soils are on low ridges in the flatwoods. Slopes range from 0 to 5 percent. The water table is at a depth of about 24 to 40 inches for about 2 to 4 months during most years and recedes to a depth of more than 60 inches during drier periods.

Newnan soils are geographically closely associated with Pomona and Wauchula soils. Pomona and Wauchula soils are poorly drained. In addition, Wauchula soils have an argillic horizon within a depth of 40 inches.

A typical pedon of Newnan fine sand, in a wooded area, 2.3 miles south of Florida Highway 54 and 0.75 mile west of a grade road, NW1/4SW1/4 sec. 21, T. 26 S., R. 20 E.

A1—0 to 5 inches; dark gray (10YR 4/1) rubbed fine sand; salt-and-pepper appearance unrubbed; weak medium granular structure; very friable; many fine and medium roots; very strongly acid; clear smooth boundary.

A2—5 to 22 inches; light brownish gray (10YR 6/2) fine sand; few fine faint dark gray mottles; single grain; loose; many fine and medium roots; strongly acid; gradual wavy boundary.

B21h—22 to 26 inches; dark brown (7.5YR 3/2) fine sand; weak fine granular structure; very friable; common fine and medium roots; sand grains are coated with colloidal organic materials; strongly acid; gradual wavy boundary.

B22h—26 to 33 inches; dark yellowish brown (10YR 3/4) fine sand; single grain; loose; common fine roots; sand grains are coated with colloidal organic materials; strongly acid; gradual wavy boundary.

B3—33 to 38 inches; yellowish brown (10YR 5/4) fine sand; single grain; loose; common fine roots; strongly acid; gradual wavy boundary.

A'2—38 to 44 inches; very pale brown (10YR 7/3) fine sand; few fine faint yellowish brown mottles; single grain; loose; common fine roots; very strongly acid; clear smooth boundary.

B'21t—44 to 70 inches; yellowish brown (10YR 5/4) sandy clay loam; common medium distinct yellowish brown (10YR 5/8) and light gray (10YR 7/2) and moderate coarse prominent dusky red (10R 3/4) mottles; weak medium subangular blocky structure; firm; very few fine roots; medium acid; gradual wavy boundary.

B'22t—70 to 80 inches; grayish brown (2.5Y 5/2) sandy clay loam; common medium distinct yellowish brown (10YR 5/6) and dark brown (7.5YR 4/4) mottles; weak medium granular structure; friable; very strongly acid.

The solum is more than 60 inches thick. Reaction ranges from extremely acid to medium acid in all horizons. The total thickness of the A horizon is less than 30 inches. The depth to the argillic horizon ranges from 40 to 75 inches.

The A1 or Ap horizon has hue of 10YR, value of 2 to 5, and chroma of 1 or 2; or it is neutral and has value of 3 or 4. Where the value is 3 or less, the thickness of the horizon is 5 inches or less. The A2 horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. In some pedons, this horizon has a few mottles in shades of yellow and brown. The texture of the A horizon is sand or fine sand throughout, except for the A1 horizon, which is fine sand.

The B2h horizon has hue of 10YR, value of 2, and chroma of 1 or 2; or it has hue of 10YR, value of 3, and chroma of 2 to 4; or it has hue of 7.5YR, value of 3, and chroma of 2; or it has hue of 5YR, value of 2 or 3, and chroma of 2 or 3. The texture is sand or fine sand, and the sand grains are coated with colloidal organic materials.

The B3 horizon has hue of 10YR, value of 4 or 5, and chroma of 3 or 4; or it has hue of 10YR, value of 3, and chroma of 4; or it has hue of 7.5YR, value of 4, and chroma of 2 or 4, with or without mottles in shades of gray or brown. The B3 horizon is sand or fine sand. This horizon is not present in all pedons.

The A'2 horizon has hue of 10YR, value of 6 to 8, and chroma of 1 to 4. Mottles in shades of gray, yellow, and brown are common. The texture is sand or fine sand.

The upper part of the B'2t horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 to 4, with mottles in shades of gray, yellow, or brown. The lower part of the B'2t horizon has hue of 10YR, 5Y, or 2.5Y, value of 5 through 7, and chroma of 1 or 2. Mottles in shades of red, brown, and yellow are common. The texture of the B'2t horizon is sandy loam, fine sandy loam, or sandy clay loam. In some pedons, a B'1t horizon is over the B'2t horizon. This horizon has colors similar to those of the B'2t horizon, but its texture is loamy sand or loamy fine sand.

Nobleton series

The Nobleton series is a member of the clayey, mixed, hyperthermic family of Aquic Arenic Paleudults. It consists of somewhat poorly drained, moderately slowly permeable soils that formed in thick deposits of sandy and loamy marine sediment. These nearly level to gently sloping soils are on the uplands. In most years, the water table is perched at a depth of 20 to 40 inches for a cumulative period of 1 to 4 months during the summer rainy season. Slopes range from 0 to 5 percent.

Nobleton soils are geographically closely associated with Blichton, Flemington Variant, Kendrick, Millhopper, and Sparr soils. Blichton soils are poorly drained and are at lower elevations. Flemington Variant soils are poorly drained and have an A horizon less than 20 inches thick. Kendrick soils are well drained and are at higher elevations. Millhopper and Sparr soils have an A horizon 40 to 50 inches thick. In addition, Millhopper soils are moderately well drained.

Typical pedon of Nobleton fine sand, in an improved pasture, approximately 0.3 mile east of Florida Highway 41 and 0.3 mile south of county line, SE1/4NW1/4 sec. 3, T. 24 S., R. 20 E.

Ap—0 to 5 inches; very dark grayish brown (10YR 3/2) fine sand; weak fine granular structure; very friable; common fine roots; medium acid; clear smooth boundary.

A21—5 to 17 inches; yellowish brown (10YR 5/4) fine sand; single grain; loose; few fine roots; few charcoal fragments; medium acid; clear wavy boundary.

A22—17 to 29 inches; pale brown (10YR 6/3) fine sand; common medium distinct strong brown (7.5YR 5/6) mottles; single grain; loose; few fine roots; medium acid; clear wavy boundary.

B21t—29 to 36 inches; pale brown (10YR 6/3) sandy clay loam; common medium distinct grayish brown (10YR 5/2) and yellowish red (5YR 5/6) mottles; weak medium subangular blocky structure; friable; few fine roots; sand grains coated and bridged with clay; strongly acid; gradual wavy boundary.

B22t—36 to 47 inches; mottled yellowish red (5YR 4/6), strong brown (7.5YR 5/6), yellowish brown (10YR 5/8), and light brownish gray (10YR 6/2) sandy clay; moderate medium subangular blocky structure; firm; few fine roots; common discontinuous clay films on surface of peds; very strongly acid; gradual smooth boundary.

B23tg—47 to 62 inches; light gray (2.5Y 7.2) sandy clay loam; many medium prominent yellowish brown and common medium distinct strong brown (7.5YR 5/6) and yellowish red (5YR 4/6) mottles; weak medium subangular blocky structure; firm; sand grains are bridged and coated with clay; very strongly acid; gradual smooth boundary.

B3g—62 to 80 inches; light gray (10YR 7/2) sandy clay loam; common medium prominent yellowish brown (10YR 5/8) and common medium distinct yellowish red (5YR 4/6) mottles; weak medium subangular blocky structure; friable; common loamy sand coatings and lenses between peds; extremely acid.

The thickness of the solum is 60 inches or more. In the natural state, this soil is very strongly acid to medium acid in the A horizon and strongly acid to extremely acid in the Bt horizon. Where lime has been added, reaction ranges to slightly acid in the A horizon.

The A1 or Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. It is 4 to 8 inches thick. The A2 horizon has hue of 10YR, value of 5 to 7, and chroma of 3 or 4, with or without mottles. The total thickness of the A horizon ranges from 20 to 40 inches. The texture is fine sand or loamy fine sand throughout, except for the A1 or Ap horizon, which is fine sand.

The B21t horizon has hue of 10YR, value of 5 to 7, and chroma of 3 to 8; or it has hue of 7.5YR, value of 5 or 6, and chroma of 6 to 8, with few to common mottles with chroma of 2 or less. The texture is sandy clay loam or sandy clay.

The B22t horizon commonly does not have a dominant matrix color and is a mixture of mottles that have hue of 10YR, value of 5 or 6, and chroma of 3 to 8; hue of 10YR, value of 5 to 7, and chroma of 1 or 2; hue of 7.5YR, value of 5 or 6, and chroma of 6 or 8; or hue of 2.5YR or 5YR, value of 4 to 6, and chroma of 6 to 8. Where the matrix has a dominant color, it has hue of 10YR, value of 5 or 6, and chroma of 3 to 8, with few to many distinct mottles in the hue, value, and chroma for the mixture of mottles listed above. The texture of the B22t horizon is commonly sandy clay.

The B23tg horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2, with few to many mottles in the hue, value, and chroma described for the B22t horizon. The texture is sandy clay or sandy clay loam. In some pedons, a B3g horizon is present below the B23tg horizon. It differs from the B23tg horizon by having pockets and lenses of sandy loam or loamy sand.

Okeelanta series

The Okeelanta series is a member of the sandy or sandy-skeletal, siliceous, euic, hyperthermic family of Terric Medisaprists. It consists of very poorly drained, rapidly permeable soils that formed in moderately thick deposits of hydrophytic plant remains overlying mineral material. These nearly level soils are in broad swampy areas in the lowlands and in small depressions. The water table is at or near the surface, except during extended dry periods. Slopes are dominantly less than 1 percent.

Okeelanta soils are geographically closely associated with Anclote, Basinger, Myakka, Pompano, and Terra Ceia soils. Anclote, Basinger, Myakka, and Pompano soils are mineral soils and generally are on slightly higher positions on the landscape. Terra Ceia soils have an organic layer to a depth of 52 inches or more.

Typical pedon of Okeelanta muck, in a wooded area, approximately 0.7 mile east of Aripeka and 0.3 mile south of Pasco-Hernando County line, SE1/4NE1/4 sec. 1, T. 24 S., R. 16 E.

Oa1—0 to 10 inches; black (5YR 2/1) rubbed and pressed muck; about 20 percent fiber unrubbed, less than 5 percent rubbed; weak coarse granular structure; many roots; sodium pyrophosphate extract is dark brown (10YR 3/3); mildly alkaline; gradual smooth boundary.

Oa2—10 to 27 inches; dark reddish brown (5YR 3/2) rubbed and pressed muck; about 15 percent fiber unrubbed, less than 5 percent rubbed; massive; slightly sticky; many fine and medium roots; sodium pyrophosphate extract is dark brown (10YR 4/3); mildly alkaline; clear smooth boundary.

IIC1—27 to 38 inches; black (10YR 2/1) fine sand; massive; very friable; few fine roots; mildly alkaline; clear wavy boundary.

IIC2—38 to 65 inches; gray (10YR 6/1) fine sand; common medium distinct dark gray (10YR 4/1) and very dark gray (10YR 3/1) mottles; single grain; loose; few fine roots; mildly alkaline.

Organic materials are 16 to 40 inches thick and are underlain by sandy mineral horizons. The organic materials range from medium acid to moderately alkaline in a 1:1 water dilution, and they do not have a pH more acid than 4.5 in 0.01 Molar calcium chloride.

The Oa horizon has hue of 5YR, value of 2, and chroma of 1 or 2; or it has hue of 5YR, value of 3, and chroma of 2 or 3; or it has hue of 10YR, value of 2, and chroma of 1 or 2; or it has hue of 10YR, value of 3 or 4, and chroma of 3; or it has hue of 7.5YR, value of 3, and chroma of 2; or it is neutral and has value of 2. It is made up of well decomposed organic materials which contain about 5 to 33 percent fiber unrubbed. Mineral content of this horizon ranges from about 10 to 40 percent. Many pedons have a layer of hemic material up to 7 inches thick on the surface.

The IIC horizon has hue of 10YR, value of 2 to 7, and chroma of 1; or it has hue of 10YR, value of 5 or 7, and chroma of 2; or it is neutral and has value of 2 to 7. The texture of this horizon is sand, fine sand, loamy sand, or loamy fine sand. Fine to medium shell fragments are in this horizon in a few areas.

Ona series

The Ona series is a member of the sandy, siliceous, hyperthermic family of Typic Haplaquods. It consists of poorly drained, moderately permeable soils that formed in sandy marine sediment. These nearly level soils are in broad flatwoods areas. Slopes are less than 2 percent. The water table is at a depth of 10 to 40 inches for a period of 4 to 6 months during most years. It rises to a depth of less than 10 inches for a period of 1 to 2 months, and may recede to a depth of more than 40 inches during very dry seasons.

Ona soils are geographically closely associated with Basinger, Myakka, Smyrna, and Pomona soils. All of the associated soils have an A2 horizon. In addition, Basinger soils do not have a spodic horizon and Pomona soils have an argillic horizon beneath the spodic horizon.

Typical pedon of Ona fine sand, in a cutover area, about 25 feet east of pipeline and 30 feet north of grassy pond, SE1/4NW1/4 sec. 14, T. 25 S., R. 19 E.

A11—0 to 5 inches; black (N 2/0) rubbed fine sand; many light gray sand grains when dry; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; clear smooth boundary.

A12—5 to 7 inches; very dark gray (10YR 3/1) fine sand; many light gray sand grains; weak fine granular structure; very friable; many fine and medium roots; strongly acid; clear smooth boundary.

B21h—7 to 13 inches; dark brown (7.5YR 3/2) fine sand; weak fine granular structure; very friable; grains are well coated with colloidal organic matter; strongly acid; clear wavy boundary.

B22h—13 to 18 inches; dark reddish brown (5YR 2/2) fine sand; weak fine granular structure; very friable; common fine roots; sand grains are well coated with colloidal organic matter; strongly acid; clear wavy boundary.

B3—18 to 23 inches; brown (10YR 5/3) fine sand; single grain; loose; few fine roots; strongly acid; gradual wavy boundary.

C1—23 to 45 inches; pale brown (10YR 6/3) fine sand; single grain; loose; few fine roots; strongly acid; gradual smooth boundary.

C2—45 to 55 inches; light brownish gray (10YR 6/2) fine sand; few fine faint very dark grayish brown mottles; single grain; loose; few fine roots; strongly acid; gradual smooth boundary.

C3—55 to 80 inches; light gray (10YR 7/1) fine sand; single grain; loose; strongly acid.

Reaction ranges from extremely acid to medium acid in all horizons. The texture is sand or fine sand throughout, except for the A1 horizon, which is fine sand.

The A1 or Ap horizon has hue of 10YR, value of 2 or 3, and chroma of 1; or it is neutral and has value of 2 or 3. In many pedons, an incipient A2 horizon about 2 inches thick is between the A1 or Ap horizon and the Bh horizon.

The B2 horizon is neutral and has value of 2; or it has hue of 10YR, value of 2, and chroma of 1 or 2; or it has hue of 5YR, value of 2, and chroma of 1; or it has hue of 5YR, value of 2 or 3, and chroma of 2; or it has hue of 5YR, value of 3, and chroma of 3; or it has hue of 7.5YR, value of 3, and chroma of 2. In some pedons, the B2h horizon is mottled in these colors or in hue of 10YR, value of 4, and chroma of 2. Sand grains are thinly to thickly coated with colloidal organic materials.

The B3 horizon, where present, has hue of 10YR, value of 3 to 5, and chroma of 3; or it has hue of 10YR, value of 4, and chroma of 2; or it has hue of 7.5YR, value of 3, and chroma of 2. In some pedons, bodies of weakly cemented materials having the same colors as the Bh horizon are in the B3 horizon.

The C horizon has hue of 10YR, value of 5, and chroma of 2; or it has hue of 10YR, value of 6, and chroma of 2 to 4; or it has hue of 10YR, value of 7 or 8, and chroma of 1 to 4; or it has hue of 2.5Y, value of 6, and chroma of 2.

Orlando series

The Orlando series is a member of the sandy, siliceous, hyperthermic family of Quartzipsammentic Haplumbrepts. It consists of well drained, rapidly permeable soils that formed in thick deposits of marine sands. These nearly level to gently sloping soils are in the uplands. Depth to the seasonal high water table is greater than 72 inches. Slopes range from 0 to 5 percent.

Orlando soils are geographically associated with Arredondo, Candler, Gainesville, Kendrick, Lake, and Millhopper soils. Orlando soils differ from all of these soils by having an umbric epipedon. Arredondo, Kendrick, and Millhopper soils have an argillic horizon within 80 inches of the surface. Candler soils have discontinuous lamellae and are in an uncoated family. Lake and Gainesville soils are in a coated family.

Typical pedon of Orlando fine sand, in a recently cleared pasture, 300 feet north of U.S. Highway 98, 1.5 miles southeast of junction of U.S. Highway 98 and Florida Highway 35A, 1.6 miles northwest of junction of U.S. Highway 98 and Florida Highway 54, SE1/4SW1/4 sec. 20, T. 25 S., R. 22 E.

Ap—0 to 9 inches; very dark gray (10YR 3/1) fine sand mixed with fine particles of decomposed organic matter; weak medium granular structure; very friable; many fine and medium roots; few uncoated sand grains; medium acid; clear wavy boundary.

A12—9 to 21 inches; very dark grayish brown (10YR 3/2) fine sand; single grain; loose; few fine roots; few fine carbon pieces; slightly acid; gradual wavy boundary.

A&C—21 to 31 inches; mixed dark yellowish brown (10YR 4/4), dark brown (10YR 4/3), and dark grayish brown (10YR 4/2) fine sand; common medium distinct yellowish brown (10YR 5/6) streaks; single grain; loose; few fine roots; few scattered pockets of unmixed dark grayish brown (10YR 4/2) fine sand; medium acid; gradual wavy boundary.

C1—31 to 45 inches; yellowish brown (10YR 5/6) fine sand; single grain; loose; strongly acid; gradual wavy boundary.

C2—45 to 68 inches; strong brown (7.5YR 5/6) fine sand; single grain; loose; strongly acid; gradual wavy boundary.

C3—68 to 80 inches; yellowish brown (10YR 5/6) fine sand; single grain; loose; few vertical streaks of light gray (10YR 7/2) sand grains; strongly acid.

Reaction ranges from strongly acid to medium acid throughout, except where lime has been applied. Fine sand extends to a depth of more than 80 inches. The content of silt and clay in the 10- to 40-inch control section is less than 10 percent.

The A or Ap horizon has hue of 10YR or 2.5Y, value of 3 or less, and chroma of 2 or less.

An A&C horizon commonly is present. It generally is a uniform mixture in hue of 10YR or 2.5Y, value of 4 through 7, and chroma of 4 or less. In some pedons, hue of 10YR or 2.5Y, value of 4 or 5 and chroma of 2 predominates, and other colors are present to a lesser degree. Small pockets, lenses, or streaks of gray to white uncoated sand grains are in the horizon in some pedons. In some pedons, streaks of material from underlying horizons are in the lower part of the A&C horizon.

The C horizon has hue of 10YR, value of 4, and chroma of 3 or 4; or it has hue of 10YR, value of 5 through 7, and chroma of 3 through 8; or it has hue of 7.5YR, value of 4, and chroma of 4; or it has hue of 7.5YR, value of 5, and chroma of 4 through 8; or it has hue of 7.5YR, value of 6 or 7, and chroma of 6 or 8; or it has hue of 5YR, value of 4, and chroma of 6; or it has hue of 5YR, value of 5 or 6, and chroma of 6 or 8; or it has hue of 2.5Y, value of 4, and chroma of 4; or it has hue of 2.5Y, value of 5, and chroma of 4 or 6; or it has hue of 2.5Y, value of 6 or 7, and chroma of 6 to 8. In some pedons, there are few to common fine to coarse mottles or splotches of gray to white uncoated sand, but these are not indicative of wetness. A few distinct strong brown to brownish yellow mottles are in the lower part of this horizon in some pedons.

Paisley series

The Paisley series is a member of the fine, montmorillonitic, hyperthermic family of Typic Albaqualfs. It consists of poorly drained, slowly permeable soils that formed in clayey marine sediment influenced by underlying calcareous materials. These nearly level soils are on low ridges in the flatwoods. The water table is at a depth of 10 inches or less for 2 to 6 months during most years. Water may be above the surface for less than one month in wet seasons.

Paisley soils are geographically associated with Adamsville, Cassia, Pomona, Smyrna, and Wauchula soils. Adamsville and Cassia soils are somewhat poorly drained and are sandy throughout. In addition, Cassia soils have a spodic horizon. Smyrna, Pomona, and Wauchula soils have a spodic horizon. Adamsville and Cassia soils are on slightly higher ridges than the Paisley soils. Smyrna, Pomona, and Wauchula soils are on about the same position on the landscape as Paisley soils.

Typical pedon of Paisley fine sand, in a wooded area, approximately 1.25 miles east of powerline and 0.75 mile north of Anclote River, NE1/4SW1/4 sec. 15, T. 26 S., R. 17 E.

A1—0 to 3 inches; black (10YR 2/1) fine sand; weak medium granular structure; very friable; many fine and medium roots; many uncoated sand grains; very strongly acid; clear wavy boundary.

A2—3 to 10 inches; grayish brown (10YR 5/2) fine sand; weak medium granular structure; very friable; strongly acid; abrupt wavy boundary.

B21tg—10 to 16 inches; light gray (10YR 7/1) sandy clay; common medium distinct dark grayish brown (10YR 4/2) and brownish yellow (10YR 6/8) mottles; moderate medium subangular blocky structure; firm; sticky and plastic; many fine and medium roots; few thin distinct clay films on ped faces; medium acid; clear wavy boundary.

B22tg—16 to 41 inches; light gray (10YR 7/2) sandy clay; common medium distinct brownish yellow (10YR 6/6) and gray (10YR 6/1) mottles; moderate medium subangular blocky structure; firm; sticky and plastic; few fine and medium roots; few thin distinct clay films on ped faces; common accumulations of sand between and around peds; neutral; clear wavy boundary.

B23tg—41 to 52 inches; mixed gray (10YR 6/1) and light gray (10YR 7/1) sandy clay; common medium distinct brownish yellow (10YR 6/6) mottles; weak medium subangular blocky structure; firm; few roots; few thin distinct clay films on ped faces; common pockets of sand and sandy clay loam; few small white calcium carbonate accumulations; mildly alkaline; clear smooth boundary.

Cg—52 to 80 inches; light gray (10YR 7/1) clay; few fine faint brownish yellow mottles; massive; firm; common pockets of sand and sandy clay; few small white calcium carbonate accumulations; mildly alkaline.

The thickness of the solum ranges from 40 to 72 inches or more. Reaction ranges from very strongly acid to slightly acid in the A horizon and from medium acid to moderately alkaline in the B2tg and Cg horizons. Limestone cobblestones and boulders range from none to few throughout the pedon.

The A1 or Ap horizon has hue of 10YR, value of 2 to 5, and chroma of 1; or it has hue of 10YR, value of 3, and chroma of 2; or it is neutral and has value of 2 to 5. The thickness ranges from 2 to 6 inches if the color value is 3 or less and from 2 to 8 inches if the color value is greater than 3.

The A2 horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2; or it has hue of 2.5Y, value of 6, and chroma of 2; or it is neutral and has value of 5 or 6. The total thickness of the A horizon is less than 20 inches. The texture is fine sand in the A1 horizon, but ranges to loamy fine sand in the A2 horizon.

The B2tg horizon has hue of 2.5Y, value of 5, and chroma of 2; or it has hue of 5Y, value of 5 or 6, and chroma of 1; or it has hue of 10YR, value of 4 to 6, and chroma of 1; or it has hue of 10YR, value of 7, and chroma of 1 or 2; or it is neutral and has value of 5 to 7 with mottles of yellow, brown, or red. The texture of this horizon is sandy clay or clay. Clay content in the upper 20 inches of the horizon ranges from 35 to 60 percent, and silt content is less than 30 percent.

A B3g horizon is present under the B2tg horizon in many pedons. The B3g horizon has hue of 5Y, value of 5 or 6, and chroma of 1; or it has hue of 10YR, value of 5 to 7, and chroma of 1; or it is neutral and has value of 5 to 7. It is sandy clay or clay and has mottles of yellow, brown, or red. Bodies of soft, white (10YR 8/1, 8/2) carbonatic material or semihard calcareous concretions range from none to common in the lower part of the B2tg horizon and in the B3g horizon.

The Cg horizon is commonly present within a depth of 80 inches and has the same color and textural ranges as the B3g horizon. It also has common or many medium and large pockets of soft, white (10YR 8/1, 8/2) carbonatic material. Many pedons are underlain by soft carbonatic material or semihard lime material at a depth of 60 inches or more.

Palmetto series

The Palmetto series is a member of the loamy, siliceous, hyperthermic family of Grossarenic Paleaquults. It consists of poorly drained, moderately slowly permeable soils that formed in sandy and loamy marine sediment. These nearly level soils are in poorly defined drainageways and sloughs within the flatwoods. The water table is at a depth of less than 10 inches for 2 to 6 months in most years. Water may stand on the surface for brief periods after heavy rains. Slopes are less than 2 percent.

Palmetto soils are closely associated with EauGallie, Zephyr, Pomona, Sellers, and Vero soils. EauGallie, Pomona, and Vero soils have a spodic horizon and are on slightly higher areas. Vero soils also differ by having an argillic horizon at a depth of 20 to 40 inches. Zephyr soils have a histic epipedon and loamy material less than 20 inches below the mineral surface. Sellers soils have an umbric epipedon and are sandy to 80 inches or more.

Typical pedon of Palmetto fine sand, in a grassy slough, approximately 2.1 miles east of Florida Highway 581 and 2.5 miles south of Florida Highway 54, SW1/4SW1/4 sec. 21, T. 26 S., R. 20 E.

A1—0 to 4 inches; black (N 2/0) fine sand; many light gray sand grains; weak medium granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.

A2—4 to 10 inches; gray (10YR 6/1) fine sand; few fine faint dark gray mottles; single grain; loose; common fine roots; very strongly acid; clear wavy boundary.

B21h—10 to 20 inches; very dark grayish brown (10YR 3/2) fine sand; common medium distinct dark yellowish brown (10YR 4/4) mottles; single grain; loose; common fine roots; many uncoated sand grains; very strongly acid; gradual wavy boundary.

B22h—20 to 28 inches; mixed dark brown (10YR 3/3) and brown (10YR 4/3) fine sand; common medium faint very dark grayish brown (10YR 3/2) mottles; weak fine granular structure; very friable; common fine roots; many uncoated sand grains; very strongly acid; clear wavy boundary.

A'21—28 to 36 inches; pale brown (10YR 6/3) fine sand; common medium distinct very dark grayish brown (10YR 3/2) and few fine faint brown mottles; single grain; loose; common fine roots; strongly acid; clear wavy boundary.

A'22—36 to 46 inches; very pale brown (10YR 7/3) fine sand; common medium distinct brown (10YR 4/3) and few fine faint dark brown mottles; single grain; loose; few fine roots; strongly acid; clear wavy boundary.

B'21tg—46 to 48 inches; light brownish gray (2.5Y 6/2) fine sandy loam; common fine distinct gray (5Y 6/1) and common medium distinct dark brown (10YR 3/3) mottles; weak medium granular structure; very friable; few fine roots; sand grains are coated and bridged with clay; strongly acid; clear smooth boundary.

B'22tg—48 to 57 inches; light brownish gray (2.5Y 6/2) sandy clay loam; common medium distinct dark grayish brown (10YR 4/2), light olive brown (2.5Y 5/4, 5/6), and olive brown (2.5Y 4/4) mottles; moderate medium subangular blocky structure; firm; few fine roots; sand grains are bridged and coated with clay; strongly acid; gradual wavy boundary.

B'23tg—57 to 68 inches; light gray (10YR 7/1) sandy clay loam; many coarse prominent yellowish brown (10YR 5/6), common medium distinct olive brown (2.5Y 4/4), and few fine distinct strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; firm; clay films on ped faces; strongly acid; clear wavy boundary.

B'24tg—68 to 80 inches; gray (N 5/0) sandy clay loam; common medium distinct yellowish brown (10YR 5/6) and light olive brown (2.5Y 5/6) mottles; weak medium subangular blocky structure; friable; common sand coating and lenses; strongly acid.

Reaction ranges from extremely acid to strongly acid in the A and Bh horizons, and is strongly acid or very strongly acid in the B'2tg horizon.

The A1 or Ap horizon has hue of 10YR, value of 1 to 4, and chroma of 1 or 2; or it is neutral and has value of 1 to 4. The thickness is less than 7 inches in places where the value is 2 or 3.

The A2 horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1, with or without mottles; or it has hue of 10YR, value of 5, and chroma of 2 with mottles; or it is neutral and has value of 6 or 7, with or without mottles. The texture is sand or fine sand. The total thickness of the A horizon ranges from 10 to 38 inches.

The B2h horizon does not meet the requirements of a spodic horizon. It has mainly hue of 10YR, value of 3, and chroma of 2 or 3; or it has hue of 10YR, value of 4, and chroma of 2 to 4; or it has hue of 7.5YR, value of 4, and chroma of 2 or 4; but it ranges to hue of 10YR, value of 5, and chroma of 2 to 4, where value of the A2 horizon is 7. Common to many uncoated sand grains are present. The texture is sand or fine sand.

The B3 horizon is sand or fine sand and has hue of 10YR, value of 5 or 6, and chroma of 4. This horizon does not occur in all pedons. Its thickness ranges from 0 to 6 inches.

The A'2 horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 to 3. The texture is sand or fine sand. This horizon does not occur in some pedons.

The B'2tg horizon has hue of 10YR or 5Y, value of 4 to 7, and chroma of 1 or 2; or it has hue of 2.5Y, value of 4 to 7, and chroma of 2; or it is neutral and has value of 4 to 7, with or without mottles of yellow, red, brown, or gray. The texture is sandy loam, fine sandy loam, or sandy clay loam.

In some pedons, a B'3g horizon is below the B'2tg horizon. The B'3g horizon has the same color range as the B'2tg horizon, and its texture ranges from loamy sand to fine sandy loam. In some pedons, a Cg horizon is below the B'2tg horizon or the B'3g horizon. It is sand, fine sand, loamy sandy, or loamy fine sand and has hue of 10YR, 2.5Y, or 5Y, value of 5 to 8, and chroma of 4 or less.

Paola series

The Paola series is a member of the uncoated, hyperthermic family of Spodic Quartzipsamments. It consists of excessively drained, very rapidly permeable soils that formed in thick beds of sandy marine or eolian deposits. These nearly level to sloping soils are on high ridges and hillsides in the sandhill areas of the county. Slopes range from 0 to 8 percent. The water table is below a depth of 72 inches.

Paola soils are geographically closely associated with Astatula, Candler, and Tavares soils. Astatula and Candler soils are on about the same position on the landscape as Paola soils, but they do not have an A2 or a B2 horizon. In addition, Candler soils have lamellae in the lower part of the profile. Tavares soils are on lower positions on the landscape and have mottles that show evidence of wetness at a depth of 40 to 60 inches.

Typical pedon of Paola fine sand, in a wooded area, approximately 1 mile southwest of Florida Highway 595 and 100 yards east of Old Dixie Highway, SE1/4SE1/4 sec. 11, T. 24 S., R. 16 E.

A1—0 to 3 inches; gray (10YR 5/1) fine sand; single grain; loose; many medium and large roots; many uncoated sand grains; very strongly acid; clear smooth boundary.

A2—3 to 26 inches; white (10YR 8/1) fine sand; single grain; loose; few fine faint dark gray stains along root channels; many common and large roots; many uncoated sand grains; strongly acid; clear irregular boundary.

B&A—26 to 57 inches; brownish yellow (10YR 6/6) fine sand; single grain; loose; few tongues filled with light colored sand from the A horizon above are throughout this horizon; outer edges of the tongues are stained with yellowish red (5YR 5/6), dark brown (7.5YR 4/4), and strong brown (7.5YR 5/6) organic material that, in places, is weakly cemented; few fine soft spheroidal very dark grayish brown (10YR 3/2) concretions are throughout the horizon; many fine and medium roots; strongly acid; clear irregular boundary.

C1—57 to 80 inches; very pale brown (10YR 7/4) fine sand; few fine faint strong brown and dark brown stains in and around deeper root channels; single grain; loose; few roots; sand grains are slightly coated; medium acid; gradual wavy boundary.

The texture is fine sand to a depth of 80 inches or more. Reaction ranges from very strongly acid to medium acid in all horizons. The content of silt and clay in the 10- to 40-inch control section is less than 5 percent.

The A1 horizon is neutral and has value of 4 through 6; or it has hue of 10YR, value of 4 through 6, and chroma of 1; or it has hue of 10YR, value of 4, and chroma of 2.

The A2 horizon is neutral and has value of 6 through 8; or it has hue of 10YR, value of 6, and chroma of 1; or it has hue of 10YR, value of 7 or 8, and chroma of 1 or 2; or it has hue of 2.5Y, value of 7 or 8, and chroma of 2.

The B part of the B&A horizon has hue of 10YR, value of 5, and chroma of 3 or 4; or it has hue of 10YR, value of 5 through 7, and chroma of 6 or 8; or it has hue of 7.5YR, value of 5, and chroma of 6 or 8; or it has hue of 7.5YR, value of 6, and chroma of 6. The A part consists of tongues of A horizon material, 1 to 4 inches wide and 3 to 18 inches long, that extend downward. Some pedons do not have these tongues. Streaks of brown to reddish brown are on the edges of the tongues. Some pedons have a thin discontinuous horizontal lense that has hue of 7.5YR, value of 3, and chroma of 2 or hue of 5YR or 10YR, value of 4, and chroma of 3 or 4. The lense is at the lower boundary of the A2 horizon and is 2 to 5 inches thick. Weakly cemented fragments having color similar to the lenses may be scattered throughout the B part of the horizon.

The C horizon has hue of 10YR, value of 5, and chroma of 3; or it has hue of 10YR, value of 6 through 8, and chroma of 3 or 4; or it has hue of 10YR, value of 8, and chroma of 1. The lower chromas are commonly present in the deepest part of the pedon.

Pineda series

The Pineda series is a member of the loamy, siliceous, hyperthermic family of Arenic Glossaqualfs. It consists of poorly drained, very slowly to slowly permeable soils that formed in sandy and loamy marine sediment. These nearly level soils are in low areas in the flatwoods. Slopes are less than 2 percent. In most years, the water table is within a depth of 10 inches for 1 to 6 months in places where the soil is in an unaltered natural state.

Pineda soils are geographically closely associated with Felda, Paisley, Vero, and Zephyr soils. Felda soils do not have Bir horizons and glossic properties. Paisley soils have a Btg horizon above a depth of 20 inches. Vero soils have a spodic horizon and do not have a Bir horizon. Zephyr soils have a histic epipedon and generally occur in depressions.

Typical pedon of Pineda fine sand, in an area of native vegetation, about 75 feet west of Quail Hollow Boulevard and 100 feet south of unnamed paved side street, SW1/4NW1/4 sec. 35, T. 25 S., R. 19 E.

A1—0 to 4 inches; very dark gray (10YR 3/1) fine sand mixed with fine decomposed organic matter; moderate medium granular structure; very friable; many fine and medium roots; medium acid; clear smooth boundary.

A21—4 to 7 inches; grayish brown (10YR 5/2) fine sand; common medium distinct very dark gray (10YR 3/1) mottles; single grain; loose; few fine roots; few fine faint dark brown streaks; medium acid; gradual wavy boundary.

A22—7 to 21 inches; gray (10YR 5/1) fine sand; single grain; loose; few coarse roots; few fine faint very dark gray and very dark grayish brown streaks; medium acid; gradual wavy boundary.

B21ir—21 to 31 inches; yellowish brown (10YR 5/6) fine sand; single grain; loose; common medium distinct yellowish brown (10YR 5/8) mottles along root channels; few hard iron concretions 1 to 2 millimeters in diameter; sand grains well coated with iron; slightly acid; gradual wavy boundary.

B22ir—31 to 36 inches; strong brown (7.5YR 5/8) fine sand; single grain; loose; sand grains well coated with iron; slightly acid; gradual wavy boundary.

A'2—36 to 39 inches; dark grayish brown (10YR 4/2) fine sand; single grain; loose; slightly acid; gradual wavy boundary.

B'21tg—39 to 57 inches; grayish brown (2.5Y 5/2) sandy clay loam; weak medium subangular blocky structure; friable; common medium distinct dark grayish brown (10YR 4/2) sandy tongues; white (10YR 8/1) clean sand grains; neutral; clear smooth boundary.

B'22tg—57 to 72 inches; greenish gray (5G 6/1) sandy clay loam; common medium distinct grayish brown (2.5Y 5/2) and many coarse prominent dark grayish brown (2.5Y 4/2) mottles; weak medium subangular blocky structure; friable; neutral.

Cg—72 to 80 inches; light gray (2.5Y 7/2) sandy loam; weak medium subangular blocky structure; friable; splotches of white (10YR 8/1) sand grains; neutral.

The thickness of the solum is 40 to 80 inches. The combined thickness of the A and Bir horizons is 20 to 40 inches. Reaction ranges from strongly acid to neutral in the A and Bir horizons and from neutral to moderately alkaline in the Btg and C horizons.

The A1 horizon has hue of 10YR, value of 2 or 3, and chroma of 1; or it has hue of 10YR, value of 4, and chroma of 1 or 2; or it has hue of 10YR, value of 5, and chroma of 2; or it is neutral and has value of 2 through

4. Where the value is 3.5 or less, the thickness is less than 10 inches.

The A2 horizon has hue of 10YR, value of 5, and chroma of 1 to 3; or it has hue of 10YR, value of 6, and chroma of 1 or 2; or it has hue of 10YR, value of 7 or 8, and chroma of 1 to 4; or it is neutral and has value of 5 to 8; or it has hue of 2.5Y, value of 5 to 8, and chroma of 2. The texture is sand or fine sand. Some pedons do not have an A2 horizon.

The B2ir horizon has hue of 10YR, value of 6, and chroma of 3; or it has hue of 10YR, value of 5 or 6, and chroma of 6 or 8; or it has hue of 7.5YR, value of 5, and chroma of 6 or 8. In some pedons, a B3ir horizon is below the B2ir. It has hue of 10YR, value of 6 through 8, and chroma of 3 or 4; or it has hue of 2.5Y, value of 6 through 8, and chroma of 4, with mottles in shades of yellow or brown. The texture of the Bir horizon is sand or fine sand.

The A 2 horizon is present in most pedons and has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. The texture is sand or fine sand, and the thickness ranges from 0 to 3 inches. In pedons where the A'2 horizon is absent, the Bir horizon rests directly on the B2tg horizon.

The B2tg horizon has vertical sandy intrusions from overlying horizons. It has hue of 10YR, value of 4 through 7, and chroma of 1 or 2; or it is neutral and has value of 4 to 7; or it has hue of 2.5Y, value of 4 to 7, and chroma of 2; or it has hue of 5Y, value of 5 or 6, and chroma of 1; or it has hue of 5G or 5GY, value of 5 to 7, and chroma of 1 mottled with yellow or brown. The texture of the matrix is fine sandy loam or sandy clay loam. The intrusions of horizons from above are fine sand. The content of clay in the B2tg horizon averages about 15 to 25 percent. In some pedons, a B1tg horizon is over the B2tg horizon. The B1tg horizon has colors similar to those of the B2tg, but its texture is loamy fine sand or fine sandy loam. Some pedons have a B3g horizon below the B2tg horizon. The B3g horizon has colors similar to the B2tg horizon and a texture of sandy loam, fine sandy loam, or sandy clay loam.

The Cg horizon has hue of 10YR, value of 5 or 6, and chroma of 1; or it has hue of 10YR, value of 7, and chroma of 1 or 2; or it is neutral and has value of 5 through 7; or it has hue of 2.5Y, value of 7, and chroma of 2. The texture is loamy sand, sand, sandy loam, or sandy clay loam.

Placid series

The Placid series is a member of the sandy, siliceous, hyperthermic family of Typic Humaquepts. It consists of very poorly drained, rapidly permeable soils that formed in unconsolidated sandy marine sediment under conditions of a fluctuating but generally very shallow ground water table. These nearly level soils are mainly in the western part of the survey area at the base of slopes and in short, slightly depressional, narrow drainageways. The landscape position favors collection of runoff water from surrounding more elevated areas and causes accumulation of organic materials carried by the runoff water. In most years, the water table is within a depth of 10 inches for a cumulative period of 6 months in the greater part of areas of these soils. In some part of most areas of these soils, water commonly stands above the surface for short periods during seasonal high rainfall. Water covers most of an area in years when heavy rainfall for extended periods saturates the soil and greatly impedes natural drainage patterns. Slopes are less than 2 percent.

Placid soils are geographically associated with Arredondo, Candler, Lake, Millhopper, Orlando, and Sparr soils. All the associated soils are better drained than Placid soils and are on higher landscape positions. Unlike Placid soils, they have an umbric epipedon.

Typical pedon of Placid fine sand, along a drainageway in a pasture, 200 feet east of Florida Highway 35A, SW1/4SE1/4 sec. 1, T. 25 S., R. 21 E.

Ap—0 to 9 inches; black (N 2/0) fine sand; moderate medium crumb structure; very friable; many fine and medium roots; estimated 8 percent organic matter content; few small pockets of dark gray (10YR 4/1) and gray (10YR 5/1) fine sand; medium acid; gradual wavy boundary.

A12—9 to 18 inches; very dark grayish brown (10YR 3/2) fine sand; weak fine crumb structure; very friable; lower part of horizon has narrow tongues and pockets of black (10YR 2/1) and very dark gray (10YR 3/1) fine sand; medium acid; gradual wavy boundary.

C1—18 to 31 inches; dark grayish brown (10YR 4/2) fine sand; single grain; loose; few fine roots; few vertical streaks of black (10YR 2/1) and very dark gray (10YR 3/1) fine sand; very strongly acid; gradual wavy boundary.

C2—31 to 63 inches; grayish brown (10YR 5/2) fine sand; single grain; loose; very strongly acid; gradual wavy boundary.

C3—63 to 80 inches; gray (10YR 6/1) fine sand; single grain; loose; very strongly acid.

The soil is 80 or more inches thick. The texture is sand, fine sand, loamy sand, or loamy fine sand in all horizons, except for the A1 horizon, which is fine sand. Reaction ranges from extremely acid to strongly acid in the A horizon and from extremely acid to slightly acid in the C horizon. In areas which have been limed or which receive runoff from other limed areas reaction ranges to medium acid in the surface horizon.

The A1 or Ap horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2; or it is neutral and has value of 2 or 3, with or without mottles. In some pedons, the lower 3 to 6 inches of the A horizon has hue of 10YR, value of 4, and chroma of 1; or it is neutral and has value of 4. The content of organic matter ranges from about 2 to 10 percent.

The C horizon has hue of 10YR, value of 4, and chroma of 2; or it has hue of 10YR, value of 5 to 7, and chroma of 1 or 2; or it has hue of 5Y, value of 5 to 7, and chroma of 1; or it has hue of 5Y, value of 7, and chroma of 2; or it has hue of 2.5Y, value of 5, and chroma of 2; or it is neutral and has value of 5 to 7. This horizon may be mottled in shades of yellow or red, or it may have a few discontinuous streaks having hue of 10YR, value of 2 or 3, and chroma of 1.

Pomello series

The Pomello series is a member of the sandy, siliceous, hyperthermic family of Arenic Haplohumods. It consists of moderately well drained, moderately rapidly permeable soils that formed in thick deposits of marine sand. These nearly level to gently sloping soils are on low ridges in the flatwoods. Slopes range from 0 to 5 percent. In most years, under natural conditions, the water table is at a depth of 24 to 40 inches for 1 to 4 months and at a depth of 40 to 60 inches for 8 months.

Pomello soils are geographically closely associated with Adamsville, Myakka, Sellers, and Tavares soils. Adamsville and Tavares soils do not have a spodic horizon. Myakka soils are poorly drained and have an A horizon less than 30 inches thick. Sellers soils are very poorly drained, have an umbric epipedon, and are in low-lying depressions.

Typical pedon of Pomello fine sand, in an undisturbed area of native vegetation, about 500 feet south of south end of Crews Lake, 0.5 mile east of Shady Hill Road, along a trail road, NE1/4SE1/4 sec. 30, T. 24 S., R. 18 E.

A11—0 to 3 inches; dark gray (10YR 4/1) fine sand; mixed with fine decomposed organic particles; weak fine crumb structure; very friable; few fine roots; strongly acid; clear smooth boundary.

A12—3 to 6 inches; gray (10YR 5/1) fine sand; single grain; loose; few medium roots; many white (10YR 8/1) sand grains; strongly acid; gradual wavy boundary.

A2—6 to 32 inches; white (10YR 8/1) fine sand; single grain; loose; few medium roots; few fine carbon fragments; strongly acid; gradual to clear wavy boundary.

B21h—32 to 36 inches; dark reddish brown (5YR 3/2) fine sand; common medium distinct dark reddish brown (2.5YR 3/4) mottles; massive in place, parts to weak medium subangular blocky structure when disturbed; friable; few medium roots; sand grains are well coated with colloidal organic materials; strongly acid; gradual wavy boundary.

B22h—36 to 41 inches; dark reddish brown (5YR 3/4) fine sand; few medium faint dark reddish brown fragments; massive in place, parts to weak medium subangular blocky structure if disturbed; friable; few medium roots; few to many uncoated sand grains; strongly acid; gradual wavy boundary.

B23h—41 to 54 inches; dark brown (7.5YR 4/4) fine sand; common medium distinct dark reddish brown (5YR 3/4) mottles; single grain; loose; few medium roots; sand grains uncoated; very strongly acid; gradual wavy boundary.

B3—54 to 80 inches; mixed dark yellowish brown (10YR 4/4) and dark brown (10YR 4/3) fine sand; single grain; loose; few medium faint very dark brown streaks; strongly acid.

Reaction ranges from very strongly to medium acid.

The A1 or Ap horizon has hue of 10YR, value of 4 through 7, and chroma of 1; or it has hue of 10YR, value of 4, 6, or 7, and chroma of 2; or it has hue of 2.5Y, value of 6 or 7, and chroma of 2. The A2 horizon has hue of 10YR, value of 5 through 8, and chroma of 1; or it has hue of 10YR, value of 7 or 8, and chroma of 2; or it has hue of 2.5Y, value of 7 or 8, and chroma of 2; or it is neutral and has value of 6 through 8. The total thickness of the A horizon ranges from 30 to 50 inches.

The B21h and B22h horizons have hue of 5YR, value of 2, and chroma of 1 or 2; or they have hue of 5YR, value of 3, and chroma of 2 through 4; or they have hue of 7.5YR, value of 3, and chroma of 2; or they have hue of 10YR, value of 2, and chroma of 1. The B23h horizon has hue of 10YR, value of 3, and chroma of 3 or 4; or it has hue of 7.5YR, value of 4, and chroma of 2 or 4, with common to medium mottles and fragments having colors of the B21h or B22h horizon. The B3 horizon has colors similar to those of the B23h matrix and, additionally, has hue of 10YR, value of 4, and chroma of 4.

A C horizon is present in those profiles in which the B3 horizon does not extend to a depth of 80 inches. It has hue of 10YR, value of 5, chroma of 1 or 2; or it has hue of 10YR, value of 6, and chroma of 1 or 3; or it has hue of 10YR, value of 7, and chroma of 1, 3, or 4.

Pomona series

The Pomona series is a member of the sandy, siliceous, hyperthermic family of Ultic Haplaquods. It consists of poorly drained, moderately slowly permeable soils that formed in sandy and loamy marine deposits. These nearly level soils are on broad flatwoods areas. Slopes are less than 2 percent. In most years, under natural conditions, the water table is at a depth of 10 inches for 1 to 3 months and is at a depth of 10 to 40 inches for 6 months or more.

Pomona soils are geographically closely associated with Adamsville, Myakka, Sellers, Smyrna, and Wauchula soils. Adamsville soils are better drained, do not have a spodic and an argillic horizon, and are on higher positions on the landscape. Sellers soils have a very thick umbric epipedon and do not have an argillic horizon. Myakka and Smyrna soils do not have an argillic horizon. Wauchula soils have an argillic horizon between depths of 20 and 40 inches.

Typical pedon of Pomona fine sand, in an area 0.2 mile east of pipeline and 1.7 miles east of West Coast Regional Water Supply Authority pumping station, SW1/4SW1/4 sec. 22, T. 25 S., R. 18 E.

A1—0 to 6 inches; black (10YR 2/1) rubbed, fine sand; weak fine crumb structure; very friable; many uncoated sand grains; many fine roots; extremely acid; clear wavy boundary.

A21—6 to 13 inches; gray (10YR 6/1) fine sand; very dark gray (10YR 3/1) krotovinas; common medium distinct, very dark gray (10YR 3/1) mottles; single grain; loose; few fine roots; very strongly acid; clear wavy boundary.

A22—13 to 22 inches; light gray (10YR 7/1) fine sand; few common distinct very dark gray (10YR 3/1) mottles; single grain; loose; many fine roots; strongly acid; clear wavy boundary.

B21h—22 to 26 inches; dark reddish brown (5YR 3/2) fine sand; weak medium subangular blocky structure; very friable; many fine and medium roots; most sand grains are coated with organic matter; very strongly acid; clear wavy boundary.

B22h—26 to 32 inches; dark reddish brown (5YR 3/3) fine sand; common medium distinct grayish brown (10YR 5/2) mottles; moderate medium granular structure; very friable; many fine and medium roots; most sand grains are coated with colloidal organic matter; very strongly acid; clear wavy boundary.

B3—32 to 36 inches; dark brown (10YR 3/3) fine sand; common medium distinct dark brown (7.5YR 3/2) and very dark grayish brown (10YR 3/2) mottles; single grain; loose; common fine roots; very strongly acid; clear wavy boundary.

A'2—36 to 51 inches; pale brown (10YR 6/3) fine sand; common medium distinct dark brown (7.5YR 3/2) mottles; single grain; loose; common fine roots; strongly acid; clear wavy boundary.

B'1h—51 to 52 inches; dark brown (10YR 3/3) fine sand; common medium distinct dark yellowish brown (10YR 4/4) mottles and common dark reddish brown (5YR 3/4) concretions; single grain; loose; common fine roots; very strongly acid; clear wavy boundary.

B'2tg—52 to 60 inches; olive gray (5Y 5/2) fine sandy loam; weak medium subangular blocky structure; very friable; common fine roots; sand grains are coated and bridged with clay; very strongly acid; clear wavy boundary.

Cg—60 to 80 inches; gray (N 6/0) loamy fine sand; massive; friable; common fine roots; very strongly acid.

The thickness of the solum is 60 inches or more. The depth from the surface to the Bh horizon is less than 30 inches and to the B'2t horizons is more than 40 inches. Reaction ranges from extremely acid to strongly acid in all horizons.

The Al or Ap horizon is neutral or has hue of 10YR, and it has value of 2 to 4 and chroma of 1 or less. Undisturbed, it is a mixture of uncoated sand grains and small pieces of organic material. The A2 horizon is neutral or has hue of 10YR, and it has value of 5 to 8 and chroma of 1 or 2; or it is neutral and has value of 5 to 8. In some pedons, the A2 horizon has few mottles in shades of yellow and brown. In others, vertical streaks having hue of 10YR, value of 2 through 4, and chroma of 1 are present. The texture of the A horizon is sand or fine sand throughout, except for the A1 or Ap horizon, which is fine sand. The total thickness ranges from 20 to 30 inches.

The B2h horizon has hue of 5YR, value of 2, and chroma of 1 or 2; or it has hue of 5YR, value of 3, and chroma of 1 to 4; or it has hue of 10YR, value of 2, and chroma of 1 or 2; or it has hue of 7.5YR, value of 3, and chroma of 2; or it is neutral and has value of 2. The texture is sand or fine sand, and the sand grains are coated with colloidal organic materials.

The B3 horizon has hue of 10YR, value of 3 or 4, and chroma of 3; or it has hue of 7.5YR, value of 3, and chroma of 2; or it has hue of 7.5YR, value of 4, and chroma of 2 to 4. The texture is sand or fine sand and the sand grains are uncoated. Mixed in this horizon in some pedons are common areas and bodies of sand grains, which are coated with colloidal organic materials and have colors similar to those in the Bh horizon.

The A'2 horizon has hue of 10YR, value of 5 to 7, and chroma of 1 to 3; or it has hue of 10YR, value of 4, and chroma of 2. The texture is sand or fine sand. A few pedons do not have an A'2 horizon.

The B'h horizon as described does not occur in many pedons. It is similar in color to the Bh horizon, but colors having value of 2 and chroma less than 2 occur only rarely. Some pedons have hue of 10YR, value of 3 or 4, and chroma of 3 or 4 in this horizon. The horizon ranges from 0 to 3 inches in thickness, and its texture is sand or fine sand.

The B'tg horizon has hue of 10YR or 5Y, value of 5 through 7, and chroma of 1 or 2. Mottles in shades of yellow, brown, or red are commonly present. The texture is sandy loam, fine sandy loam, or sandy clay loam. The lower part of this horizon has pockets and lenses of coarser or finer textured material.

The C horizon has hue of 10YR, 2.5Y, or 5Y, value of 5 to 8, and chroma of 1 or 2; or it is neutral and has value of 5 to 8. Mottles in shades of yellow, brown, or red are commonly present. The texture is sand, fine sand, loamy sand, or loamy fine sand. This horizon is below a depth of 80 inches in some pedons.

Pompano series

The Pompano series is a member of the siliceous, hyperthermic family of Typic Psammaquents. It consists of poorly drained, very rapidly permeable soils that formed in thick deposits of marine sands. These nearly level soils are on broad low flats, poorly defined drainageways, and flood plains. The water table is at a depth of less than 10 inches for a cumulative period of 2 to 6 months during most years. Even in the drier months it is generally within a depth of 30 inches. Flood plains are frequently flooded for brief periods in most years.

Pompano soils are geographically closely associated with Adamsville, Anclote, and Basinger soils. Adamsville soils are somewhat poorly drained and are slightly higher on the landscape. Anclote soils are in depressions and have a mollic epipedon. Basinger soils have a Bh&A horizon.

Typical pedon of Pompano fine sand, in a wooded area, approximately 25 feet north of pipeline, NW1/4NW1/4 sec. 28, T. 25 S., R. 19 E.

A1—0 to 7 inches; very dark gray (10YR 3/1) fine sand; weak fine granular structure; very friable; many fine roots; very strongly acid; clear smooth boundary.

C1—7 to 15 inches; grayish brown (10YR 5/2) fine sand; single grain; loose; common fine and medium roots; medium acid; gradual wavy boundary.

C2—15 to 33 inches; very pale brown (10YR 7/3) fine sand; single grain; loose; few fine roots; medium acid; gradual wavy boundary.

C3—33 to 55 inches; light brownish gray (10YR 6/2) fine sand; few medium distinct yellowish brown (10YR 5/6) mottles; single grain; loose; slightly acid; gradual wavy boundary.

C4—55 to 80 inches; very pale brown (10YR 8/3) fine sand; single grain; loose; slightly acid.

Reaction ranges from very strongly acid to mildly alkaline. The texture is fine sand throughout.

The A1 or Ap horizon has hue of 10YR, value of 2 to 5, and chroma of 1; or it is neutral and has value of 2 to 5. An A12 horizon is under the A1 in some pedons. It has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2.

The C horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2; or it has hue of 10YR, value of 5 to 8, and chroma of 3; or it has hue of 10YR, value of 7 or 8, and chroma of 4; or it has hue of 2.5Y, value of 5 or 7, and chroma of 2; or it has hue of 2.5Y, value of 7, and chroma of 1; or it is neutral and has value of 5 or 6. Higher chroma colors are caused either by uncoated sand grains or by thin coatings of colloidal organic material on the sand grains. The horizon is commonly mottled in shades of gray, yellow, or brown.

Quartzipsamments

Quartzipsamments in this survey area are somewhat poorly drained to excessively drained sandy soils that have been reworked and shaped by earthmoving equipment. These nearly level to gently sloping soils are commonly near urban centers. Many areas are former sloughs, marshes, or shallow ponds that have been filled with sandy material to surrounding ground level. Some areas were originally high ridges that were excavated to below natural ground level and reworked. Slopes range from 0 to 5 percent. The depth to the water table ranges from about 20 inches to more than 72 inches, depending on the thickness of fill material and the drainage of the underlying soil. In most excavated areas, the water table is below 72 inches.

Quartzipsamments are closely associated with many of the soils in the survey area. They differ from the associated soils in not having an orderly sequence of horizons.

Reference pedon of Quartzipsamments, in a school yard, 300 feet west of Fivay Road, 0.5 mile south of Bear Creek, SE1/4SE1/4 sec. 11, T. 25 S., R. 16 E.

C1—0 to 25 inches; mixed dark gray (10YR 4/1), gray (10YR 5/1), brownish yellow (10YR 6/6, 6/8), and light gray (10YR 7/1) fine sand; single grain; loose; parts neutral, other parts medium acid; gradual wavy boundary.

C2—25 to 35 inches; pale brown (10YR 6/3) fine sand; single grain; loose; slightly acid; abrupt wavy boundary.

IIAb—35 to 39 inches; dark gray (10YR 4/1) fine sand; single grain; loose; many uncoated sand grains; strongly acid; clear wavy boundary.

IICb—39 to 80 inches; brownish yellow (10YR 6/6) fine sand; single grain; loose; many uncoated sand grains; strongly acid.

Reaction ranges from very strongly acid to neutral in all layers and parts of layers. The thickness of the fill material ranges from about 20 inches to more than 80 inches. The texture is commonly fine sand, but ranges to sand. The color of the fill is highly variable within short distances and is predominantly in shades of gray, brown, and yellow.

The surface of the underlying natural soil may be thin or thick sand or fine sand, and it commonly has hue of 10YR, value of 2 through 5, and chroma of 2 or less. Below this is dark to light colored sand.

Samsula series

The Samsula series is a member of the sandy or sandy-skeletal, siliceous, dysic, hyperthermic family of

Terric Medisaprists. It consists of very poorly drained, rapidly permeable soils that formed in well decomposed organic matter and underlying sandy marine sediment. These nearly level soils are in low depressional areas. Slopes are less than 2 percent. In most years, under natural conditions, the water table is at or near the surface for 6 to 12 months and commonly is above the surface for very long periods.

Samsula soils are geographically closely associated with Blichton, Pomona, and Sellers soils. All of the associated soils are mineral soils. Blichton and Pomona soils are on higher positions on the landscape.

Typical pedon of Samsula muck, in a pasture, 0.6 mile east of U.S. Highway 301, 0.5 mile south of main entrance of road to a large ranch, SE1/4SW1/4 sec. 23, T. 24 S., R. 21 E.

Oa1—0 to 3 inches; black (5YR 2/1) rubbed and pressed, well decomposed muck; about 20 percent fiber unrubbed, 8 percent rubbed; massive; friable; many fine and medium roots; about 45 percent mineral material; sodium pyrophosphate extract color very dark grayish brown (10YR 3/2); very strongly acid, pH 3.5 in 0.01 M calcium chloride; clear smooth boundary.

Oa2—3 to 24 inches; dark reddish brown (5YR 2/2) rubbed and pressed, well decomposed muck; about 10 percent fiber unrubbed, 5 percent rubbed; massive; friable; few scattered streaks of very dark gray (10YR 3/1) sand grains; many scattered white (10YR 8/1, 8/2) sand grains; about 45 percent mineral material; many dead and decaying roots; sodium pyrophosphate extract color very dark grayish brown (10YR 3/2); very strongly acid, pH 3.6 in 0.01 M calcium chloride; clear smooth boundary.

Oa3—24 to 32 inches; very dark grayish brown (10YR 3/2) rubbed and pressed well decomposed muck; about 5 percent fiber unrubbed, less than 1 percent rubbed; massive; friable; about 50 percent mineral material; sodium pyrophosphate extract color very dark grayish brown (10YR 3/2); very strongly acid, pH 3.8 in 0.01 M calcium chloride; clear smooth boundary.

Oa4—32 to 35 inches; very dark grayish brown (10YR 3/2) mucky fine sand; massive; friable; estimated 10 percent of horizon made up of visible white (10YR 8/1, 8/2) scattered sand grains; about 17 percent organic material; very strongly acid; clear wavy boundary.

IIA1b—35 to 39 inches; dark gray (10YR 4/1) fine sand; common medium distinct very dark gray (l0YR 3/1) and dark grayish brown (10YR 3/2) mottles; single grain; loose; few decayed roots with very dark grayish brown (10YR 3/1) along root channels; very strongly acid; gradual wavy boundary.

IIC1b—39 to 45 inches; gray (10YR 5/1) fine sand; few fine faint dark grayish brown mottles; single grain; loose; very strongly acid; gradual wavy boundary.

IIC2b—45 to 80 inches; light gray (10YR 7/2) fine sand; few fine faint brown and dark grayish brown mottles; single grain; loose; few small scattered carbon fragments; very strongly acid.

Reaction of the organic material is less than 4.5 in 0.01 Molar calcium chloride and is very strongly acid or strongly acid by Troug methods. The organic material becomes more acid when allowed to dry. The thickness of the organic material ranges from 16 to 40 inches. The mineral IIAb and IICb horizons have textures of sand, fine sand, or loamy sand, and reaction ranges from extremely acid to strongly acid.

The Oa horizons have hue of 10YR, value of 2 or 3, and chroma of 1; or they have hue of 10YR, value of 2, and chroma of 2; or they have hue of 5YR, value of 2, and chroma of 1 or 2; or they have hue of 5YR, value of 3, and chroma of 2 or 3; or they are neutral and have value of 2. The texture is muck, which has less than 33 percent fiber content, unrubbed. It may have more than 33 percent fiber content unrubbed if after rubbing the fiber content is less than 16 percent of the volume.

The IIAb horizon has hue of 10YR, value of 2 to 4, and chroma of 1; or it has hue of 10YR, value of 3 or 4, and chroma of 2; or it has hue of 2.5Y, value of 3 or 4, and chroma of 2; or it is neutral and has value of 2 to 4.

Sellers series

The Sellers series is a member of the sandy, siliceous, hyperthermic family of Cumulic Humaquepts. It consists of very poorly drained, rapidly permeable soils that formed in sandy marine sediment. These nearly level soils are in low depressional areas. Slopes are less than 2 percent. In most years, under natural conditions, the soil is ponded during wet seasons for 3 to 6 months, and the water table is within a depth of 10 inches for 6 to 12 months.

Sellers soils are geographically closely associated with Basinger, Myakka, Narcoossee, Pomona, and Smyrna soils. Basinger soils have an ochric epipedon and an A&Bh horizon. Myakka, Narcoossee, Pomona, and Smyrna soils have a spodic horizon and do not have an umbric epipedon. In addition, Pomona soils have an argillic horizon. All of the associated soils are better drained and are on higher positions on the landscape than Sellers soils.

Typical pedon of Sellers mucky loamy fine sand, in a depression, about 4 miles south of Florida Highway 52, 0.5 mile east of Florida Highway 583, 100 feet west of entrance of road to pumping station, NW1/4NE1/4 sec. 29, T. 25 S., R. 19 E.

Oa—2 inches to 0; black (5YR 2/1) rubbed and unrubbed muck; 20 percent fiber unrubbed, 5 percent rubbed; moderate coarse granular structure; very friable; many fine and medium roots; organic matter content about 50 percent; sodium pyrophosphate extract dark brown (10YR 4/3); extremely acid; clear smooth boundary.

A11—0 to 9 inches; black (10YR 2/1) mucky loamy fine sand; moderate medium granular structure; very friable; many fine medium and large roots; common streaks of uncoated sand grains; very strongly acid; clear smooth boundary.

A12—9 to 20 inches; black (10YR 2/1) fine sand; common medium prominent light brownish gray (10YR 6/2) mottles; weak medium granular structure; very friable; many fine, medium, and large roots; very strongly acid; clear wavy boundary.

A13—20 to 24 inches; very dark gray (10YR 3/1) rubbed, fine sand; weak medium granular structure; very friable; many fine, medium, and large roots; very strongly acid; clear smooth boundary.

C1—24 to 34 inches; dark brown (10YR 4/3) fine sand; few fine faint dark gray and common medium distinct dark grayish brown (10YR 4/2), pale brown (10YR 6/3), and light gray (10YR 7/2) mottles; single grain; loose; common fine and medium roots; very strongly acid; clear wavy boundary.

C2—34 to 48 inches; dark yellowish brown (10YR 4/4) fine sand; common medium distinct very dark gray (10YR 3/1) and very dark grayish brown (10YR 3/2) mottles; single grain; loose; common fine and medium roots; very strongly acid; gradual wavy boundary.

C3—48 to 80 inches; pale brown (10YR 6/3) fine sand; single grain; loose; very strongly acid.

Reaction ranges from extremely acid through strongly acid in all horizons.

The Oa horizon has hue of 5YR, 7.5YR, or 10YR, value of 2 or 3, and chroma of 2 or less. Its thickness ranges from 0 to 5 inches.

The A11 horizon is neutral or has hue of 10YR, and it has value of 2 and chroma of 2 or less. Its thickness ranges from 8 to 14 inches.

The A12 horizon has the same color range as the A11 but is mottled with grayish or brownish colors, or both. The thickness of the A12 horizon ranges from 8 to 20 inches.

The A13 horizon, rubbed, has hue of 10YR, value of 2 or 3, and chroma of 1. Unrubbed, the material in this horizon has a color mixture consisting of hue of 10YR, value of 2 or 3, and chroma of 1 and hue of 10YR, value of 4, and chroma of 1 or 2. The thickness of the A13 horizon ranges from 3 to 10 inches. The texture of the A horizon is fine sand or loamy fine sand, except for the A11 part, which is mucky loamy fine sand. The total thickness of the A horizon ranges from 24 to 40 inches.

The C horizon has hue of 10YR, value of 4 through 7, and chroma of 4 or less. Texture is fine sand or loamy fine sand.

Smyrna series

The Smyrna series is a member of the sandy, siliceous, hyperthermic family of Aeric Haplaquods. It consists of poorly drained, moderately to moderately rapidly permeable soils that formed in deposits of sandy marine sediment. These nearly level soils are on broad flatwoods areas. Slopes are less than 2 percent. In most years, the water table is at a depth of less than 10 inches for 1 to 4 months and between depths of 10 and 40 inches for more than 6 months. In rainy seasons, after heavy rains, the water table rises above the surface briefly.

Smyrna soils are geographically closely associated with Adamsville, Immokalee, Myakka, Narcoossee, Ona, Pomona, and Sellers soils. Adamsville and Narcoossee soils are slightly higher on the landscape and are somewhat poorly drained. In addition, Adamsville soils do not have a spodic horizon. Immokalee and Myakka soils differ by having the spodic horizon below a depth of 20 inches and a solum that is more than 40 inches thick. Pomona soils have an argillic horizon beneath the spodic horizon. Sellers soils are in depressions and do not have a spodic horizon. Ona soils do not have an A2 horizon.

Typical pedon of Smyrna fine sand, in an area of native range, 3.3 miles west of Florida Highway 581, 0.25 mile southeast of cattle pens, and 50 feet east of fence, NW1/4SW1/4 sec. 21, T. 24 S., R. 19 E.

A11—0 to 3 inches; black (N 2/0) fine sand, rubbed; unrubbed it is a mixture of white sand and particles of organic matter; weak and moderate medium granular structure; very friable; many fine and medium roots; extremely acid; clear smooth boundary.

A12—3 to 5 inches; very dark gray (10YR 3/1) fine sand; single grain; loose; many fine and medium roots; extremely acid; clear wavy boundary.

A2—5 to 10 inches; gray (10YR 5/1) fine sand; few medium distinct very dark gray (10YR 3/1) streaks along root channels; single grain; loose; few medium and fine roots; very strongly acid; clear wavy boundary.

B1—10 to 13 inches; dark grayish brown (10YR 4/2) fine sand; single grain; loose; few medium and fine roots; common to many uncoated sand grains; very strongly acid; abrupt wavy boundary.

B21h—13 to 16 inches; dark brown (7.5YR 3/2) fine sand; massive in place, parts to moderate medium granular structure when disturbed; very friable; few fine and medium roots; sand grains moderately well coated with colloidal organic material; few uncoated sand grains; very strongly acid; gradual wavy boundary.

B22h—16 to 25 inches; dark reddish brown (5YR 3/3) fine sand; massive in place, parts to weak fine granular structure when disturbed; very friable; common fine and medium roots; sand grains coated with colloidal organic material; common uncoated sand grains; very strongly acid; gradual wavy boundary.

B3&Bh—25 to 35 inches; brown (10YR 5/3) fine sand; common coarse distinct areas of dark reddish brown (5YR 3/3) Bh material; single grain; loose; common fine and few medium roots; few distinct dark brown root traces; sand grains in the Bh part are coated with colloidal organic material; very strongly acid; gradual wavy boundary.

C1—35 to 50 inches; very pale brown (10YR 7/3) fine sand; few medium distinct dark grayish brown (10YR 4/2) and brown (10YR 4/3) and few fine faint very pale brown mottles; single grain; loose; few medium roots; strongly acid; gradual wavy boundary.

C2—50 to 80 inches; light brownish gray (10YR 6/2) fine sand; few medium distinct dark grayish brown (10YR 4/2) and brown (10YR 4/3), and few fine faint very pale brown mottles; single grain; loose; strongly acid.

Reaction ranges from extremely acid to strongly acid in the A and Bh horizons and is very strongly acid or strongly acid in the C horizon. The texture is fine sand in all horizons. The thickness of the solum is less than 40 inches.

The A1 horizon, when rubbed, is neutral and has value of 2 through 4; or it has hue of 10YR, value of 2 through 4, and chroma of 1. Unrubbed, it has a salt-and-pepper appearance. The A2 horizon is neutral and has value of 5 through 8; or it has hue of 10YR, value of 5 through 8, and chroma of 1; or it has hue of 10YR, value of 8, and chroma of 2. Some pedons have mottles of gray, yellow, or brown in this horizon. The total thickness of the A horizon is less than 20 inches.

The transitional B1 horizon is absent in some profiles. It has hue of 10YR, value of 4 or 5, and chroma of 2. It ranges to as much as 3 inches in thickness.

The B2h horizon is neutral and has value of 2; or it has hue of 5YR or 10YR, value of 2, and chroma of 1 or 2; or it has hue of 5YR, value of 3, and chroma of 2 through 4; or it has hue of 7.5YR, value of 3, and chroma of 2. Sand grains in this horizon are coated with colloidal organic material. Vertical tongues or pockets of uncoated sand grains are present in some pedons.

The B3 part of the B3&Bh horizon has hue of 10YR, value of 3 through 5, and chroma of 3; or it has hue of 7.5YR, value of 3, and chroma of 2; or it has hue of 7.5YR, value of 4, and chroma of 4. Scattered pockets or fragments of Bh material having colors of the B2h horizon above are commonly present. In some pedons, the Bh pockets are absent and only a B3 horizon is present.

The C horizon has hue of 10YR, value of 4 or 5, and chroma of 1 or 2; or it has hue of 10YR, value of 5 or 7, and chroma of 3; or it has hue of 10YR, value of 6, and chroma of 2; or it has hue of 10YR, value of 7, and chroma of 4, with or without mottles of brown, yellow, or gray. In some profiles, a second sequum of A'2 and B'h horizons is below a depth of 40 inches.

Sparr series

The Sparr series is a member of the loamy, siliceous, hyperthermic family of Grossarenic Paleudults. It consists of somewhat poorly drained, moderately permeable soils that formed in sandy and loamy sediment of marine origin. These nearly level to sloping soils are on seasonally wet uplands. Slopes are smooth to concave and range from 0 to 8 percent. In most years, under natural conditions, the water table is at a depth of 20 to 40 inches for 1 to 4 months and is commonly perched on the surface of the argillic horizon.

Sparr soils are geographically closely associated with Arredondo, Millhopper, and Nobleton soils. Arredondo soils are on the drier parts of the landscape and are well drained. Millhopper soils are very similar, but are moderately well drained. Nobleton soils have an argillic horizon between a depth of 20 and 40 inches and are on similar positions on the landscape.

Typical pedon of Sparr fine sand, in an orange grove, 0.1 mile east of Florida Highway 577 and 0.2 mile south of Interstate Highway 75, SW1/4NE1/4 sec. 16, T. 24 S., R. 20 E.

Ap—0 to 6 inches; dark gray (10YR 4/1) fine sand; weak fine granular structure; friable; many fine and medium and few large roots; medium acid; clear wavy boundary.

A21—6 to 11 inches; grayish brown (10YR 5/2) fine sand; common medium distinct dark gray (10YR 4/1) streaks; single grain; loose; many fine, medium, and large roots; medium acid; gradual wavy boundary.

A22—11 to 16 inches; pale brown (10YR 6/3) fine sand; single grain; loose; common fine, medium, and large roots; few fine charcoal fragments; medium acid; gradual wavy boundary.

A23—16 to 35 inches; very pale brown (10YR 7/3) fine sand; few fine faint yellowish brown mottles; single grain; loose; common fine roots; light gray (10YR 7/1) sand splotches; medium acid; gradual wavy boundary.

A24—35 to 43 inches; light yellowish brown (10YR 6/4) fine sand; common medium distinct yellowish brown (10YR 5/6) mottles; single grain; loose; few fine roots; medium acid; clear wavy boundary.

B21t—43 to 48 inches; light yellowish brown (10YR 6/4) sandy clay loam; few fine distinct gray (10YR 6/1), common medium distinct strong brown (7.5YR 5/6), and moderate coarse prominent red (2.5YR 4/8) mottles; weak medium subangular blocky structure; friable; few fine roots; very strongly acid; gradual wavy boundary.

B22t—48 to 59 inches; light yellowish brown (10YR 6/4) sandy clay loam; common medium distinct brownish yellow (10YR 6/8) and light gray (10YR 7/1) and moderate coarse prominent red (2.5YR 4/8) mottles; weak medium subangular blocky structure; very friable; very few fine roots; very strongly acid; gradual wavy boundary.

B23t—59 to 80 inches; light yellowish brown (10YR 6/4) sandy clay loam; common medium distinct light gray (10YR 7/1) and red (2.5YR 4/8) mottles; weak medium subangular blocky structure; very friable; very strongly acid.

Reaction ranges from very strongly acid to slightly acid in the A horizon, and from very strongly acid to medium acid in the B horizon. The content of plinthite ranges from 0 to 5 percent in the Bt horizon.

The Ap or A1 horizon has hue of 10YR, value of 4 or 5, and chroma of 1 or 2. The A1 or Ap horizon is 4 to 8 inches thick. The A2 horizon has hue of 10YR, value of 5 or 6, and chroma of 1 to 4; or it has hue of 10YR, value of 7 or 8, and chroma of 3 or 4. In total thickness, the A horizon ranges from 40 to 75 inches.

The B21t horizon has hue of 10YR, value of 5, and chroma of 4 to 8; or it has hue of 10YR, value of 6 or 7, and chroma of 3 or 4. It is mottled with brown, yellow, gray, and red. The texture is sandy loam, fine sandy loam, or sandy clay loam.

Some pedons have a B2tg horizon, which has no hue or hue of 10YR, value of 5 to 7 and chroma of 2 or less, with mottles of gray, yellow, brown, and red. The texture ranges from fine sandy loam to sandy clay. In some pedons, the B22tg horizon is mottled gray, yellow, brown, and red.

Tavares series

The Tavares series is a member of the hyperthermic, uncoated family of Typic Quartzipsamments. It consists of moderately well drained, very rapidly permeable soils that formed in thick beds of sandy marine or eolian sediment. These nearly level to gently sloping soils are on knolls and ridges throughout the county. In most years, under natural conditions, the water table is at a depth of 40 to 60 inches for 6 to 10 months and below 60 inches during very dry periods.

Tavares soils are geographically associated with Adamsville, Astatula, Candler, Lake, and Orlando soils. Adamsville soils occur at lower elevations and are somewhat poorly drained. Astatula, Candler, Lake, and Orlando soils are excessively drained. In Lake soils, silt and clay make up 5 to 10 percent of the 10- to 40-inch control section. Candler soils have lamellae in the lower part of the profile. Orlando soils have an umbric epidedon.

Typical pedon of Tavares sand, in a wooded area, 2.1 miles west of Florida Highway 581, 450 feet north of an east-west trail road, SE1/4NW1/4 sec. 22, T. 24 S., R. 19 E.

A1—0 to 3 inches; very dark gray (10YR 3/1) sand; weak medium granular structure; loose; many fine and medium roots; many uncoated sand grains; strongly acid; gradual wavy boundary.

C1—3 to 9 inches; yellowish brown (10YR 5/4) sand; weak medium granular structure; loose; few fine and coarse roots; few fine carbon particles; sand grains slightly coated; strongly acid; gradual wavy boundary.

C2—9 to 34 inches; light yellowish brown (10YR 6/4) sand; few fine faint light gray and brownish yellow mottles in lower 2 inches of horizon; weak medium granular structure; loose; few fine and coarse roots; few fine scattered carbon particles; dark brown staining along root channels; strongly acid; gradual wavy boundary.

C3—34 to 56 inches; yellowish brown (10YR 5/6) sand; weak medium granular structure; loose; few coarse roots; few fine faint gray splotches; sand grains lightly coated; very strongly acid; gradual wavy boundary.

C4—56 to 76 inches; very pale brown (10YR 7/3) sand; few fine faint brownish yellow mottles; weak medium granular structure; loose; few coarse roots; many uncoated sand grains; strongly acid; gradual wavy boundary.

C5—76 to 86 inches; white (10YR 8/1) sand; few fine faint yellowish brown and very pale brown mottles; weak medium granular structure; loose; few coarse roots; strongly acid.

The soil is sand to a depth of 80 inches or more. Reaction ranges from strongly acid to medium acid in all horizons. The content of silt and clay in the 10- to 40-inch control section is less than 5 percent.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2; or it has hue of 10YR, value of 5, and chroma of 1; or it has hue of 2.5Y, value of 3 or 4, and chroma of 2. It ranges from 3 to 8 inches in thickness.

The upper part of the C horizon has hue of 10YR, value of 6 or 7, and chroma of 3 or 4; or it has hue of 10YR, value of 5, and chroma of 2 to 8. The lower part has hue of 10YR, value of 6, and chroma of 1 to 3; or it has hue of 10YR, value of 7, and chroma of 1 to 4; or it has hue of 10YR, value of 8, and chroma of 1 or 2.

The lower part of the C horizon has mottles of brown, yellow, or red. Large splotches or mottles having chroma of 2 or less are within a depth of 40 inches in some pedons, but these are the colors of the sand grains and are not evidence of wetness.

Terra Ceia series

The Terra Ceia series is a member of the euic, hyperthermic family of Typic Medisaprists. It consists of very poorly drained, rapidly permeable soils that formed in thick deposits of hydrophytic plant remains. These nearly level soils are in broad swampy areas. The water table is at or above the surface, except during extended dry periods. Slopes are less than 1 percent.

Terra Ceia soils are geographically closely associated with Anclote, Basinger, Myakka, Okeelanta, and Pompano soils. Anclote, Basinger, Myakka, and Pompano soils are mineral soils and generally are on slightly higher positions on the landscape. Okeelanta soils have an organic layer less than 51 inches thick.

Typical pedon of Terra Ceia muck, in a marsh, about 0.2 mile west of Lake Nash and 0.9 mile north of the Pasco-Pinellas County line, NE1/4NW1/4 sec. 36, T. 26 S., R. 15 E.

Oa1—0 to 12 inches; dark reddish brown (5YR 3/2) rubbed and pressed muck; about 35 percent fiber unrubbed, 10 percent rubbed; weak coarse granular structure; very friable; many fine roots; sodium pyrophosphate extract color dark brown (10YR 3/3); neutral; gradual smooth boundary.

Oa2—12 to 40 inches; black (5YR 2/1) rubbed and pressed muck; about 10 percent fibers unrubbed, less than 5 percent rubbed; massive; very friable; few fine roots; sodium pyrophosphate extract dark brown (10YR 3/3); neutral; gradual smooth boundary.

Oa3—40 to 80 inches; dark reddish brown (5YR 2/2) rubbed and pressed muck; about 5 percent fibers unrubbed, less than 5 percent rubbed; massive; slightly sticky; few fine roots; sodium pyrophosphate extract brown (10YR 4/3); neutral.

Reaction is 4.5 or more in 0.01 Molar calcium chloride or medium acid to moderately alkaline by the Troug method. The thickness of the organic materials is more than 52 inches.

The Oa horizon has hue of 5YR, value of 2, and chroma of 1 or 2; or it has hue of 5YR, value of 3, and chroma of 2; or it has hue of 10YR, value of 2, and chroma of 1 or 2; or it is neutral and has value of 2. The rubbed fiber content of this horizon ranges from 2 to 16 percent. Fibers are typically those of nonwoody plants, but woody plant fibers are present. The mineral content ranges from about 5 to 40 percent between depths of 16 and 52 inches.

Tomoka series

The Tomoka series is a member of the loamy, siliceous, dysic, hyperthermic family of Terric Medisaprists. It consists of very poorly drained moderately to moderately rapidly permeable soils that formed in well decomposed organic materials and underlying loamy marine sediment. These nearly level soils are in low depressional areas. In most years, under natural conditions, the water table is at or near the surface for 6 to 12 months and is commonly above the surface for long periods. Slopes are less than 2 percent.

Tomoka soils are geographically closely associated with Zephyr, Pomona, and Sellers soils. All of the associated soils are mineral. In addition, Pomona soils are on higher positions on the landscape and have a spodic horizon. Sellers soils have an umbric epipedon.

Typical pedon of Tomoka muck, in a grassy area, approximately 1/4 mile south of curve in Florida Highway 579A, NE1/4SE1/4 sec. 14, T. 25 S., R. 20 E.

Oa1—0 to 10 inches; dark reddish brown (5YR 2/2) unrubbed and black (5YR 2/1) rubbed muck; about 30 percent fiber, about 8 percent rubbed; moderate medium granular structure; very friable; many fine roots; sodium pyrophosphate brown (10YR 5/3); extremely acid; clear smooth boundary.

Oa2—10 to 16 inches; black (5YR 2/1) rubbed and pressed muck; about 10 percent fiber, about 5 percent rubbed; moderate medium granular structure; very friable; common fine roots; sodium pyrophosphate extract is dark yellowish brown (10YR 4/4); extremely acid; clear wavy boundary.

Oa3—16 to 22 inches; black (10YR 2/1) rubbed and pressed muck; about 6 percent fiber, about 5 percent rubbed; weak medium granular structure; very friable; few fine roots; 20 percent mineral content; sodium pyrophosphate dark brown (10YR 3/3); extremely acid; clear wavy boundary.

IIC1—22 to 27 inches; mixed very dark gray (10YR 3/1), dark gray (10YR 4/1), and gray (10YR 6/1) fine sand; single grain; loose; extremely acid; clear wavy boundary.

IIIC2—27 to 32 inches; gray (10YR 6/1) fine sandy loam; massive; slightly sticky; extremely acid; clear wavy boundary.

IIIC3—32 to 46 inches; gray (10YR 5/1) sandy clay loam; massive; sticky; extremely acid; clear wavy boundary.

IIIC4—46 to 55 inches; gray (10YR 5/1) fine sandy loam; massive; slightly sticky; common sand lenses; extremely acid.

The Oa horizon is neutral and has value of 2; or it has hue of 5YR or 10YR, value of 2, and chroma of 1 or 2; or it has hue of 5YR, value of 3, and chroma of 2 or 3. The fiber content is less than 33 percent unrubbed and less than 10 percent rubbed. The reaction is extremely acid by the Hellige-Troug field test and less than pH 4.5 in 0.01 Molar calcium chloride. The thickness of organic materials ranges from 16 to 40 inches.

The IIC horizon has hue of 10YR, value of 3 through 6, and chroma of 2 or less. The texture is fine sand or loamy fine sand. The thickness of the IIC horizon is 3 to 12 inches; however, where the Oa horizon is 35 to 40 inches thick, the thickness of the IIC horizon is 3 to 4 inches.

The IIIC horizon has hue of 10YR, value of 4 through 7, and chroma of 2 or less. Its texture is fine sandy loam or sandy clay loam.

Udalfic Arents

Udalfic Arents in this survey area consist of variable texture fill material that has been dug from canals through areas of Aripeka, Homosassa, and Lacoochee soils. The material has been spread over areas of undisturbed natural soil and then shaped into building sites. The fill material contains fragments of former loamy or sandy subsoil and, in places, fragments of hard and soft limestone. The thickness of the fill varies from place to place. The depth to the water table is variable. Slopes predominantly range from 0 to 2 percent, but along canal banks they are much steeper.

Udalfic Arents are geographically closely associated with several of the soils found in the coastal area. These include Aripeka, Homosassa, Jonesville, and Lacoochee soils. Udalfic Arents differ from all these soils in not having an orderly sequence of soil layers.

Reference pedon of Udalfic Arents, in a developed area, 500 feet west of U.S. Highway 19, NE1/4NE1/4 sec. 20, T. 25 S., R. 16 E.

C1—0 to 30 inches; mixed black (10YR 2/1) fine sand and dark gray (10YR 4/1), gray (10YR 5/1), brownish yellow (10YR 6/6, 6/8), and light gray (10YR 7/1) sandy loam, sandy clay loam, and sandy clay; massive; varies from loose to friable; ranges from very strongly acid to moderately alkaline; scattered small pieces, up to 3 inches in diameter, organic material; common fragments of limestone up to 3 inches in diameter; gradual irregular boundary.

C2—30 to 45 inches; mixed brownish yellow (10YR 6/6, 6/8) sandy clay loam and black (10YR 2/1) fine sand; massive; varies from loose to friable; ranges from strongly acid to moderately alkaline; about 65 percent of the horizon is fragments of limestone up to 3 inches in diameter; few scattered pieces organic materials; abrupt wavy boundary.

IIAb—45 to 50 inches; grayish brown (10YR 5/2) loamy fine sand; weak fine granular structure; friable; mildly alkaline; gradual wavy boundary.

IIBtb—50 to 61 inches; brown (10YR 5/3) sandy loam; massive with some small areas of weak medium subangular blocky structure; friable; moderately alkaline; gradual irregular boundary.

IIIRb—61 inches; hard white (10YR 8/1) limestone.

Udalfic Arents do not have an orderly sequence of soil layers. They are a mixture of lenses, streaks, and pockets of sandy, loamy, and clayey material. They are highly variable within short distances. The depth of the fill material ranges from about 40 to 60 inches. Commonly, the fill material is underlain by a layer of the former soil, which in turn is underlain by limestone. Reaction ranges from very strongly acid to moderately alkaline.

Vero series

The Vero series is a member of the sandy over loamy, siliceous, hyperthermic family of Alfic Haplaquods. It consists of poorly drained, slowly to moderately slowly permeable soils that formed in sandy and loamy marine sediment. These nearly level soils are on low, broad flatwoods areas. Slopes are 0 to 2 percent. In most years, if this soil is in an unaltered natural state, the water table is at a depth of 10 to 40 inches for more than 6 months. It is at a depth of less than 10 inches for 1 to 4 months in wet seasons, and it is at a depth of more than 40 inches during very dry seasons.

Vero soils are geographically closely associated with EauGallie, Paisley, and Wauchula soils. EauGallie soils have an argillic horizon that begins at a depth of 40 to 80 inches. Paisley soils do not have a spodic horizon, are clayey, and are on slightly higher positions on the landscape. Wauchula soils have low base saturation in the argillic horizon. Wauchula and EauGallie soils are on the same landscape position as Vero soils. West of U.S. Highway 19, Vero soils are associated with Aripeka soils. Aripeka soils are on low ridges, do not have a spodic horizon, and are underlain by limestone at a depth of 20 to 40 inches.

Typical pedon of Vero fine sand, in an uncleared area, 0.3 mile west of pipeline and 1.25 miles east of West Coast Regional Water Supply Authority pumping station, NW1/4NW1/4 sec. 27, T. 25 S., R. 19 E.

A1—0 to 6 inches; black (N 2/0) rubbed fine sand; when unrubbed, the organic matter and light gray sand grains have a salt-and-pepper appearance; moderate medium granular structure; friable; many fine and common medium roots; extremely acid; clear wavy boundary.

A21—6 to 11 inches; gray (10YR 5/1) fine sand; common medium distinct very dark gray (10YR 3/1) streaks; single grain; loose; few fine and medium roots; very strongly acid; clear wavy boundary.

A22—11 to 23 inches; light brownish gray (10YR 6/2) fine sand; few fine faint dark gray mottles; single grain; loose; few fine roots; strongly acid; clear smooth boundary.

B21h—23 to 27 inches; dark reddish brown (5YR 3/2) fine sand; weak medium subangular blocky structure; friable; most sand grains are coated with organic matter; few fine roots; neutral; clear wavy boundary.

B22h—27 to 30 inches; dark reddish brown (5YR 3/2) fine sand; the lower 1/2 inch is black (5YR 2/1); weak medium subangular blocky structure; friable; most sand grains are coated with organic matter; few fine roots; neutral; abrupt clear boundary.

B21tg—30 to 35 inches; light brownish gray (10YR 6/2) sandy clay loam; common medium prominent yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; very firm; few fine roots; thin clay films on ped faces; neutral; gradual wavy boundary.

B22tg—35 to 44 inches; light brownish gray (10YR 6/2) sandy clay loam; common medium prominent red (2.5YR 4/6) and yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; firm; few fine roots; sand grains bridged and coated with clay; mildly alkaline; gradual wavy boundary.

B3g—44 to 51 inches; light gray (10YR 7/2) fine sandy loam; moderate medium prominent yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; firm; few fine roots; moderately alkaline; gradual irregular boundary.

C1g—51 to 66 inches; light gray (10YR 7/1) fine sandy loam; common medium distinct yellowish brown (10YR 5/6) mottles; massive; very friable; common to many carbonatic nodules 1/4 inch to 3 inches in diameter; strongly alkaline; gradual smooth boundary.

C2g—66 to 80 inches; light gray (5Y 7/1) sandy clay loam; massive; friable; moderately alkaline.

The A1 or Ap horizon is neutral and has value of 2 through 4; or it has hue of 10YR, value of 2, and chroma of 1; or it has hue of 10YR, value of 3 or 4, and chroma of 1 or 2; or it has hue of 2.5Y, value of 3 or 4, and chroma of 2. Undisturbed, it commonly has a salt-and-pepper appearance. The thickness of the A1 or Ap horizon is less than 8 inches. The A2 horizon is neutral and has value of 5 or 6; or it has hue of 10YR, value of 5 through 7, and chroma of 1 or 2; or it has hue of 2.5Y, value of 5 or 6, and chroma of 2. The A horizon is less than 30 inches thick. It is sand or fine sand. Reaction in the A horizon ranges from extremely acid to strongly acid.

The B2h horizon has hue of 10YR, value of 2, and chroma of 1; or it has hue of 10YR, value of 3, and chroma of 2 or 3; or it has hue of 5YR, value of 2, and chroma of 1 or 2; or it has hue of 5YR, value of 3, and chroma of 2 through 4; or it has hue of 7.5YR, value of 3, and chroma of 2. The texture of the B2h horizon is fine sand or sand, and the thickness ranges from 4 to 14 inches. Some pedons have a B3 or B3&Bh horizon. The B3 horizon has hue of 10YR, value of 4, and chroma of 3 or 4; or it has hue of 7.5YR, value of 4, and chroma of 2 or 4; or it has hue of 5YR, value of 4, and chroma of 3 or 4. Fragments of Bh material having color of the B2h horizon are scattered throughout the B3&Bh horizon. Reaction ranges from very strongly acid to neutral.

An A'2 horizon may be present below the B2h or B3 horizon in some pedons. It has hue of 10YR, value of 4 to 7, and chroma of 1 or 2; or it has hue of 2.5Y, value of 4 to 7, and chroma of 1; or it is neutral and has value of 4 to 7.

The depth to the B2tg or B'2tg horizon ranges from 26 to 40 inches. This horizon has hue of 10YR, value of 5 through 7, and chroma of 4 or less; or it has hue of 2.5Y, value of 5 or 6, and chroma of 2; or it is neutral and has value of 5 or 6; or it has hue of 5Y, value of 5 to 7, and chroma of 1. Mottles of gray, brown, yellow, and red are commonly present. The texture is fine sandy loam or sandy clay loam. Reaction is mildly or moderately alkaline.

The Cg horizon has color similar to that of the B2tg horizon. In addition, it has hue of 5Y or 5GY, value of 5 to 7, and chroma of 1. The texture ranges from fine sand to sandy clay loam. Reaction is mildly to strongly alkaline.

Vero Variant

The Vero Variant is a member of the sandy over loamy, siliceous, hyperthermic family of Alfic Haplaquods. It consists of poorly drained, slowly to moderately slowly permeable soils that formed in sandy and loamy marine sediment overlying limestone. These nearly level soils are on low, broad flatwoods areas. Slopes range from 0 to 2 percent. In most years, the water table in areas of unaltered soil is at a depth of 10 to 40 inches for more than 5 months. It is at a depth of less than 10 inches for fewer than 45 days in wet seasons, and it is at a depth of more than 40 inches during very dry seasons where the depth to limestone is greater.

Vero Variant soils are geographically closely associated with EauGallie, Paisley, Vero, and Wauchula soils. All of these soils have limestone at a greater depth. In addition, EauGallie soils have an argillic horizon that begins between depths of 40 and 80 inches. Paisley soils do not have a spodic horizon, and Wauchula soils have low base saturation in the argillic horizon. West of U.S. Highway 19, Vero soils are associated with Aripeka soils. Aripeka soils are on low ridges, do not have a spodic horizon, and are underlain by limestone at a depth of 20 to 40 inches.

Typical pedon of Vero Variant fine sand, in an uncleared area, 75 yards west of Old Dixie Highway, 50 yards north of the intersection in front of mine, 10 feet south of trail road, SE1/4 sec. 11, T. 24 S., R. 16 E.

A11—0 to 4 inches; black (10YR 2/1) rubbed fine sand; when unrubbed the organic matter and light gray sand grains have a salt-and-pepper appearance; weak fine granular structure; very friable; many fine and common medium roots; medium acid; clear wavy boundary.

A12—4 to 9 inches; dark gray (10YR 4/1) fine sand; single grain; loose; few fine and medium roots; medium acid; clear wavy boundary.

A2—9 to 16 inches; gray (10YR 5/1) fine sand; single grain; loose; few fine roots; medium acid; clear wavy boundary.

B21h—16 to 19 inches; dark reddish brown (5YR 3/2) fine sand; weak medium subangular blocky structure; friable; most sand grains are coated with organic matter; few fine roots; slightly acid; clear wavy boundary.

B22h—19 to 23 inches; dark brown (7.5YR 3/2) fine sand; weak medium subangular blocky structure; friable; most sand grains are coated with organic matter; slightly acid; clear wavy boundary.

B3—23 to 26 inches; brown (10YR 5/6) fine sand; single grain; loose; neutral; clear wavy boundary.

A'2—26 to 29 inches; light yellowish brown (10YR 5/4) fine sand; single grain; loose; moderately alkaline; clear wavy boundary.

B21t—29 to 35 inches; strong brown (7.5YR 5/6) fine sandy loam; many coarse prominent yellowish red (5YR 5/8) mottles and few fine faint pale brown mottles; weak medium subangular blocky structure; friable; moderately alkaline; clear wavy boundary.

B22t—35 to 39 inches; strong brown (7.5YR 5/6) sandy clay loam; common medium prominent yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; firm; moderately alkaline; clear wavy boundary.

IICr—39 to 45 inches; soft white (10YR 8/1) limestone rock; clear wavy boundary.

IIR—45 inches; hard limestone rock.

The A1 or Ap horizon is neutral and has value of 2 through 4; or it has hue of 10YR, value of 2, and chroma of 1; or it has hue of 10YR, value of 3 or 4, and chroma of 1 or 2; or it has hue of 2.5Y, value of 3 or 4, and chroma of 2. Undisturbed, it commonly has a salt-and-pepper appearance. The thickness of the A1 or Ap horizon ranges from 4 to 9 inches. The A2 horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2; or it has hue of 2.5Y, value of 5 or 6, and chroma of 2. The total thickness of the A horizon is less than 30 inches, and the texture is fine sand or sand. Reaction ranges from medium acid to neutral.

The B2h horizon has hue of 10YR, 7.5YR, or 5YR, value of 2 or 3, and chroma of 1 to 2. The horizon has texture of fine sand or sand and ranges from 4 to 14 inches in thickness. The B3 horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 6. Reaction ranges from slightly acid to mildly alkaline.

The A'2 horizon has hue of 10YR, value of 4 to 7, and chroma of 1 through 4; or it has hue of 2.5Y, value of 4 to 7, and chroma of 1.

The B2t horizon is at a depth of 24 to 34 inches. It has hue of 5YR or 7.5YR, value of 4 to 6, and chroma of 6 or 8. Mottles are commonly present. The texture is fine sandy loam or sandy clay loam. Reaction is mildly or moderately alkaline.

The IICr horizon is soft limestone rock. The depth to the rock ranges from 30 to 60 inches. Hard limestone fragments occur randomly throughout the IICr horizon. Solution holes filled with loamy or sandy material range from none to few. They are 2 to 15 inches in diameter and extend for varying distances into the underlying hard limestone. In some pedons, the IICr horizon is absent and the B'2t horizon lies directly on a IIR horizon. The IIR horizon has the same characteristics as the IICr horizon.

The IIR horizon is hard limestone rock. In some pedons, explosives are needed to break the rock. The upper boundary of the IIR horizon is very irregular. Solution holes, like those described for the IICr horizon, are common. In some pedons, the solution holes contain soft limestone, with or without fragments of hard limestone, as well as sandy or loamy material. This soft material is similar to the IICr horizon material.

Wauchula series

The Wauchula series is a member of the sandy, siliceous, hyperthermic family of Ultic Haplaquods. It consists of poorly drained, moderately to moderately rapidly permeable soils that formed in sandy and loamy marine sediment. These nearly level to gently sloping soils are on broad, low flatwoods areas and wet seepage hillsides. Slopes range from 0 to 5 percent. In most years, under natural conditions, the water table is at a depth of 10 to 40 inches for as long as about 6 months. It is at a depth of less than 10 inches for 1 to 4 months in most years and is at a depth of more than 40 inches during very dry seasons.

The Wauchula soils in this survey area are taxadjuncts to the Wauchula series because the content of fine or coarser sand in the loamy argillic horizon in the control section is slightly less than 50 percent. Thus, these soils belong in a sandy over loamy family rather than in a sandy family. This difference does not alter the use and behavior of the soils.

Wauchula soils are geographically closely associated with EauGallie, Myakka, Pomona, and Vero soils. EauGallie and Vero soils have high base saturation in the argillic horizon. Myakka soils do not have an argillic horizon. Pomona soils have an argillic horizon that has low base saturation below a depth of 40 inches. The associated soils occur on about the same positions on the landscape.

Typical pedon of Wauchula fine sand, in a wooded area, about 1.75 miles east of the West Coast Regional Water Supply Authority pumping station and 0.1 mile north of trail road, SW1/4SW1/4 sec. 27, T. 25 S., R. 19 E.

A11—0 to 5 inches; black (10YR 2/1) rubbed, fine sand; salt-and-pepper appearance unrubbed; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; clear wavy boundary.

A12—5 to 8 inches; dark grayish brown (10YR 4/2) fine sand; single grain; loose; many fine and medium roots; very strongly acid; clear wavy boundary.

A21—8 to 12 inches; gray (10YR 5/1) fine sand; common medium distinct very dark gray (10YR 3/1) streaks along root channels; single grain; loose; common fine and medium roots; strongly acid; clear wavy boundary.

A22—12 to 19 inches; light brownish gray (10YR 6/2) fine sand; common fine faint dark grayish brown (10YR 4/2) mottles; single grain; loose; common fine and medium roots; strongly acid; gradual wavy boundary.

B21h—19 to 23 inches; very dark gray (5YR 3/1) fine sand; weak fine granular structure; loose; few fine roots; most sand grains are coated with colloidal organic matter; very strongly acid; clear wavy boundary.

B22h—23 to 26 inches; dark reddish brown (5YR 3/3) fine sand; common medium distinct black and very dark gray (5YR 2/1, 3/1) streaks along root channels; weak fine subangular blocky structure; friable; few fine roots; most sand grains are coated with colloidal organic matter; strongly acid; clear wavy boundary.

B3—26 to 31 inches; brown (10YR 4/3) fine sand; single grain; loose; few fine roots; strongly acid; clear wavy boundary.

A'2—31 to 34 inches; pale brown (10YR 6/3) fine sand; single grain; loose; few fine roots; strongly acid; gradual wavy boundary.

B'21tg—34 to 36 inches; light gray (10YR 7/2) sandy clay loam; common medium distinct yellow brown (10YR 5/6) mottles; sand grains coated with clay; weak medium subangular blocky structure; friable; few fine roots; very strongly acid; gradual wavy boundary.

B'22tg—36 to 57 inches; light gray (10YR 7/1) sandy clay loam; many common distinct light brownish gray (10YR 6/2) mottles; many common prominent yellowish brown (10YR 5/6) mottles and common distinct prominent dark red (2.5YR 3/6) mottles; weak medium subangular blocky structure; friable; few fine roots; sand grains coated and bridged with clay; very strongly acid; gradual wavy boundary.

B'23tg—57 to 80 inches; light olive gray (5Y 6/2) sandy clay loam; common medium distinct strong brown (7.5YR 5/6), gray (10YR 6/1), and yellowish red (5YR 4/6) mottles; common coarse prominent dark red (2.5YR 3/6) mottles; weak medium subangular blocky structure; friable; few fine roots; sand grains coated with clay; very strongly acid.

Reaction is strongly acid or very strongly acid throughout the pedon.

The A1 or Ap horizon has hue of 10YR, value of 2 through 4, and chroma of 1; or it has hue of 10YR, value of 4, and chroma of 2. Undisturbed, the horizon has a salt-and-pepper appearance. The thickness ranges from 3 to 8 inches.

The A2 horizon has hue of 10YR, value of 5 through 8, and chroma of 2 or less. Some pedons have mottles of yellow, brown, or red. The texture is fine sand or sand. The total thickness of the A horizon ranges from 10 to 20 inches.

The B2h horizon has hue of 10YR or 5YR, value of 2 or 3, and chroma of 3 or less; or it has hue of 5YR, value of 3, and chroma of 4; or it has hue of 7.5YR, value of 3, and chroma of 2. The texture is fine sand or sand. The thickness of the B2h horizon ranges from 7 to 12 inches.

The B3 horizon has hue of 10YR, value of 4 through 6, and chroma of 3; or it has hue of 10YR, value of 3 or 4, and chroma of 4; or it has hue of 7.5YR, value of 4, and chroma of 2 or 4. In many pedons, few to common fine to coarse Bh bodies are in this horizon. In some pedons, the B3 horizon is absent and the Bh horizon rests directly on the Bt horizon.

The A'2 horizon has hue of 10YR, value of 5, and chroma of 1; or it has hue of 10YR, value of 6 or 7, and chroma of 1 to 3; or it has hue of 10YR, value of 7, and chroma of 4. The texture is sand or fine sand. Some pedons do not have an A'2 horizon.

The B'2tg horizon is neutral and has value of 5 or 6; or it has hue of 10YR, value of 4 through 7, and chroma of 1 or 2; or it has hue of 2.5Y, value of 4 or 5, and chroma of 2; or it has hue of 5Y, value of 6, and chroma of 2. Mottles of brown, yellow, gray, or red are in this horizon.

Some pedons have lenses of sandy material in this horizon. The content of clay ranges from about 15 to 35 percent. The texture is sandy loam, fine sandy loam, or sandy clay loam.

A few pedons have a B'3 horizon below the B'2t horizon. Colors are the same as in the B'2t horizon, and the texture is fine sandy loam or sandy loam with common pockets of sandy material.

Weekiwachee series

The Weekiwachee series is a member of the euic, hyperthermic family of Typic Sulfihemists. It consists of very poorly drained, moderately rapidly permeable soils that formed in moderately thick deposits of hydrophytic plant remains and sandy marine sediment. These nearly level soils are in broad areas of tidal marsh. Slopes are less than 1 percent. These soils are flooded during daily normal high tides.

Weekiwachee soils are geographically closely associated with Aripeka, Homosassa, and Lacoochee soils. All of the associated soils are mineral soils and are on slightly higher positions on the landscape than Weekiwachee soils.

Typical pedon of Weekiwachee muck, in a salt marsh, about 0.5 mile west of U.S. Highway 19, 0.75 mile south of Lighter Bayou, NE1/4NW1/4 sec. 9, T. 24 S., R. 16 E.

Oa1—0 to 8 inches; black (N 2/0) broken faced and rubbed, muck; about 12 percent fiber, less than 5 percent rubbed; weak fine granular structure; very friable; sodium pyrophosphate extract is dark yellowish brown (10YR 4/4); about 40 percent mineral material; 199.80 millimhos per centimeter conductivity; neutral in water at field moisture (air dry pH 5.8 in 0.01 Molar calcium chloride); gradual wavy boundary.

Oa2—8 to 16 inches; black (N 2/0) broken faced and rubbed muck; about 30 percent fiber, less than 5 percent fiber rubbed; weak fine granular structure; very friable; sodium pyrophosphate extract is dark yellowish brown (10YR 4/4); about 45 percent mineral material; 190.00 millimhos per centimeter conductivity; neutral in water at field moisture (air dry pH 5.4 in 0.01 Molar calcium chloride); gradual wavy boundary.

Oa3—16 to 31 inches; black (N 2/0) broken faced and rubbed, muck; about 20 percent fiber, less than 3 percent rubbed; weak fine granular structure; friable; few scattered pieces, 1/2 to 1 inch diameter, dark brown (10YR 3/3) woody material; sodium pyrophosphate extract is dark yellowish brown (10YR 4/4); about 50 percent mineral material; 154.00 millimhos per centimeter conductivity; neutral in water at field moisture (air dry pH 4.7 in 0.01 Molar calcium chloride); gradual wavy boundary.

IIC—31 to 39 inches; dark gray (10YR 4/1) fine sand; common medium distinct very dark gray (10YR 3/1) and olive brown (2.5Y 4/4) mottles; massive; very friable; few fine and medium roots; neutral in water at field moisture (air dry pH 4.7 in water); 9.6 millimhos per centimeter conductivity; abrupt irregular boundary.

IIICr—39 to 44 inches; white (10YR 8/1) soft limestone; massive; firm; about 30 percent hard limestone fragments; moderately alkaline; calcareous; abrupt irregular boundary.

IVR—44 inches; hard white (10YR 8/1) limestone; can be chipped but not dug with a hand spade.

The sulfur content ranges from 0.75 to 4.0 percent or more in the layers above the IIICr horizon. Conductivity of the saturation extract above the IIICr horizon is more than 16 millimhos per centimeter. Reaction ranges from slightly acid to mildly alkaline in water in the Oa and IIC horizons in the natural state; after air drying, pH in 0.01 Molar calcium chloride ranges from 4.5 to 5.5 except in the Oa1 horizon, where it ranges to 7.3.

The Oa horizon is neutral or has hue of 5YR or 10YR, and it has value of 3 or less and chroma of 3 or less. Unrubbed fiber content ranges from 6 to 30 percent and is less than 5 percent rubbed. Mineral content ranges from about 26 percent to 80 percent but is dominantly less than 65 percent. The organic layers in all tiers are predominantly muck, but chunks of wood are in some pedons. The total thickness of the Oa horizon ranges from 16 to 36 inches.

The IIC horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2, with or without mottles or streaks of gray and brown. Texture is mucky sand, mucky fine sand, sand, or fine sand. The content of organic matter ranges from about 2 to 15 percent. The combined thickness of the Oa and IIC horizons over the IIICr horizon is highly variable but ranges predominantly from 30 to 40 inches.

The IIICr horizon has hue of 10YR, value of 7 or 8, and chroma of 1 or 2. Hard limestone fragments occur randomly throughout the horizon and make up about 20 to 35 percent, by volume, of the horizon. Solution holes in this layer range from none to about three in each pedon. They are filled with sandy mineral material and hard limestone fragments. The depth to the IVR horizon commonly ranges from 40 to 51 inches, but in many places it ranges to 60 inches or more.

Zephyr series

The Zephyr series is a member of the fine-loamy, siliceous, hyperthermic family of Typic Ochraquults. It consists of very poorly drained, slowly permeable soils that formed in sandy and loamy marine sediment. These nearly level soils are in depressions. Slopes are less than 2 percent. In most years, under natural conditions, the soil is ponded for more than 6 months.

Zephyr soils are geographically closely associated with Basinger, EauGallie, Felda, Paisley, Pomona, Smyrna, Vero, and Wauchula soils. Basinger soils have a Bh&A2 horizon, do not have a histic epipedon, and are sandy to a depth of 80 inches or more. Paisley soils have an argillic horizon within 20 inches of the soil surface and do not have an histic epipedon. EauGallie, Pomona, Smyrna, Vero, and Wauchula soils have a spodic horizon and are on higher positions on the landscape. Felda soils do not have a histic epipedon.

Typical pedon of Zephyr muck, in a depression in the flatwoods, about 2.5 miles west of Quail Hollow School and 3.5 miles north of Florida Highway 54, SE1/4NW1/4 sec. 3, T. 26 S., R. 19 E.

Oa1—13 to 6 inches; black (10YR 2/1) muck; about 60 percent fine sand occurring mainly as faint streaks of light gray uncoated sand; moderate medium granular structure; very friable; many fine and medium roots; extremely acid; clear smooth boundary.

Oa2—6 inches to 0; black (10YR 2/1) muck; about 75 percent fine sand occurring mainly as faint streaks of light gray uncoated sand; weak medium granular structure; very friable; many fine and medium roots; extremely acid; gradual wavy boundary.

A1&A2—0 to 10 inches; light brownish gray (10YR 6/2) fine sand; many large distinct very dark gray (10YR 3/1) streaks; single grain; loose; common fine, medium, and coarse roots; very strongly acid; gradual wavy boundary.

A3—10 to 18 inches; dark grayish brown (10YR 4/2) fine sand; common medium distinct very dark gray (10YR 3/1) mottles; single grain; loose; common fine and few medium roots; very strongly acid; clear wavy boundary.

B21tg—18 to 33 inches; grayish brown (10YR 5/2) sandy clay loam; moderate medium subangular blocky structure; firm; few fine and medium roots; few root channels filled with dark grayish brown (10YR 4/2) fine sand from horizons above; few fine distinct dark brown (7.5YR 4/4) mottles; few clay films on ped faces; extremely acid; clear wavy boundary.

B22tg—33 to 39 inches; grayish brown (2.5Y 5/2) sandy clay loam; moderate medium subangular blocky structure; firm; few fine and medium roots; few thin sand lenses between ped surfaces; few clay films on ped faces; extremely acid; clear wavy boundary.

B23tg—39 to 48 inches; gray (5Y 6/1) sandy clay loam; weak medium subangular blocky structure; friable; few fine and medium roots; few thin sand lenses between ped surfaces; extremely acid; clear wavy boundary.

B3g—48 to 58 inches; grayish brown (10YR 5/2) fine sandy loam; common medium prominent white (10YR 8/1) lenses of sand and common medium distinct dark grayish brown (10YR 4/2) mottles; massive; friable; few fine roots; very strongly acid; clear wavy boundary.

Cg—58 to 67 inches; dark grayish brown (10YR 4/2) loamy fine sand; common medium prominent white (10YR 8/1) lenses of sand and many medium prominent very dark gray (10YR 3/1) mottles; massive; loose; very strongly acid.

The thickness of the solum ranges from 40 to 60 inches. Reaction ranges from extremely acid to strongly acid throughout.

The Oa horizon has hue of 5YR, value of 2 or 3, and chroma of 2 to 4; or it has hue of 10YR, value of 2, and chroma of 1; or it is neutral and has value of 2.

The Al&A2 horizon is less than 20 inches thick. It has texture of sand or fine sand. The A1 part has hue of 10YR, value of 2 to 4, and chroma of 1; or it is neutral and has value of 2 to 4. It occurs as large streaks concentrated at the upper boundary of the A2 horizon and extends downward throughout the A2 horizon. The A2 part has hue of 10YR, value of 4 to 8, and chroma of 1 or 2; or it is neutral and has value of 4 to 8. Some pedons have an A1 horizon. The A1 horizon has the characteristics of the A1 part of the A1&A2 horizon and ranges to 8 inches in thickness. The texture of the A1 horizon includes mucky fine sand. Below the A1 horizon is an A2 horizon which has the characteristics of the A2 part of the A1&A2 horizon. Fine to medium mottles in shades of brown and gray may be present.

The A3 horizon, where present, has hue of 10YR, value of 4, and chroma of 2 or 3, with or without fine to medium mottles in shades of brown and gray.

The B2tg horizon has hue of 10YR, value of 4 to 7, and chroma of 1, with or without mottles or chroma of 2 with mottles; or it has hue of 2.5Y, value of 4 through 7, and chroma of 2 with mottles; or it is neutral and has value of 4 to 7. The texture is fine sandy loam or sandy clay loam.

The B3g horizon, where present, has the same matrix and mottle color range as the B2tg horizon. In addition, it has hue of 5Y, value of 4 to 7, and chroma of 2 or less. The texture is fine sandy loam or sandy clay loam.

The Cg horizon has hue of 10YR, value of 4 to 7, and chroma of 2 or less; or it has hue of 2.5Y, value of 5 to 7, and chroma of 2; or it is neutral and has value of 5 to 7. The texture is fine sandy loam, loamy fine sand, or fine sand, with or without pockets and lenses of finer or coarser material.

Zolfo series

The Zolfo series is a member of the sandy, siliceous, hyperthermic family of Grossarenic Entic Haplohumods.

It consists of somewhat poorly drained, moderately permeable soils that formed in thick deposits of marine sand. These nearly level soils are on the uplands. The seasonal high water table is at a depth of 24 to 40 inches for 2 to 6 months during most years. It is at a depth of 10 to 24 inches for as long as 2 weeks in some years. Slopes range from 0 to 2 percent.

Zolfo soils are geographically closely associated with Adamsville, Immokalee, Tavares, and Pomello soils. Adamsville and Tavares soils do not have a spodic horizon. Tavares soils also are on a slightly higher position on the landscape, and Adamsville soils are on similar or slightly lower landscape positions. Pomello and Immokalee soils have a spodic horizon between depths of 30 and 50 inches.

Typical pedon of Zolfo fine sand, in an orange grove, 300 feet east of Land O'Lakes High School, 600 feet west of U.S. Highway 41, and 150 feet south of entrance road to school, SE1/4SW1/4 sec. 35, T. 25 S., R. 18 E.

Ap—0 to 3 inches; gray (10YR 5/1) fine sand; single grain; loose; many fine roots; few fine carbon fragments; strongly acid; clear smooth boundary.

A21—3 to 11 inches; light brownish gray (10YR 6/2) fine sand; few fine faint brown mottles; single grain; loose; few fine roots; few scattered carbon fragments; medium acid; gradual wavy boundary.

A22—11 to 21 inches; pale brown (10YR 6/3) fine sand; single grain; loose; few fine roots; slightly acid; gradual wavy boundary.

A23—21 to 32 inches; light gray (10YR 7/2) fine sand; few fine faint yellowish brown mottles; single grain; loose; medium acid; gradual wavy boundary.

A24—32 to 51 inches; white (10YR 8/2) fine sand; common medium distinct yellowish brown (10YR 5/6) mottles; single grain; loose; medium acid; gradual wavy boundary.

A25—51 to 65 inches; light gray (10YR 7/2) fine sand; common medium distinct yellowish brown (10YR 5/6) mottles; single grain; loose; strongly acid; gradual wavy boundary.

B21h—65 to 80 inches; dark reddish brown (5YR 3/2) fine sand; single grain; loose; common medium distinct black (5YR 2/1) and grayish brown (10YR 5/2) streaks; sand grains moderately well coated with colloidal organic materials; strongly acid; gradual wavy boundary.

B22h—80 to 85 inches; black (5YR 2/1) fine sand; weak medium granular structure; very friable; sand grains well coated with colloidal organic materials; few clean sand grains; very strongly acid.

The combined thickness of the A and Bh horizons is 55 inches or more. The texture is fine sand or sand in all horizons. Reaction ranges from very strongly acid to neutral in the A horizon and from extremely acid to slightly acid in the Bh horizon. Reaction above pH 6.0 is the result of liming.

The Ap or A1 horizon has hue of 10YR, value of 3 through 5, and chroma of 1 or 2. The A2 horizon has hue of 10YR or 2.5Y, value of 5 through 8, and chroma of 2 through 4. Few to common brown, yellow, and gray mottles are throughout the A2 horizon. Some pedons have white splotches within a depth of 40 inches. The A horizon ranges from 50 to about 75 inches in total thickness.

Some pedons have a B1h horizon. It has hue of 10YR, 7.5YR, or 5YR, value of 3 or 4, and chroma of 2 or 3. Most sand grains in this horizon are poorly coated with colloidal organic materials. Few to common uncoated sand grains occur.

The B2h horizon has hue of 10YR, 7.5YR, or 5YR, value of 2 or 3, and chroma of 3 or less. Most sand grains are coated with colloidal organic materials. Few to common uncoated sand grains occur.

formation of the soils

In this section, the factors of soil formation are discussed and related to the soils in the survey area. In addition, the processes of soil formation are described.

factors of soil formation

Soil is produced through the interaction of five major factors. These factors are the climate under which soil material has existed since accumulation; the plant and animal life in and on the soil; the type of parent material; the relief, or lay of the land; and the length of time the other factors have interacted.

The five soil-forming factors are interdependent, each modifying the effect of the others. Any one of the five factors can have more influence than the others on the formation of a soil and can account for most of its properties. For example, if the parent material is quartz sand, the soil generally has only weakly expressed horizons. The effect of the parent material is modified greatly in some places by the effects of climate, relief, or plants and animals.

parent material

The parent material of the soils in Pasco County consists of beds of sandy and clayey materials that were transported by waters of the sea, which covered the area a number of times during the Pleistocene Epoch. During the high stands of the sea, Miocene and Pliocene sediments were eroded and redeposited or were reworked on the shallow sea bottom to form terraces.

The parent materials in the survey area differ widely in mineral and chemical composition and in their physical constitution. The main physical differences, such as those between sand, silt, and clay, can be observed in the field. Other differences, such as mineral and chemical composition, are important to soil formation and to present physical and chemical characteristics. Many differences among soils in the survey area appear to reflect original differences in the parent materials as they were laid down.

climate

The amount of precipitation, the temperature, the humidity, and the wind are the climatic forces that act on the parent materials of soils. These forces also cause variation in the plant and animal life on and in the soils.

This survey area has a warm, humid climate. The Gulf of Mexico and the numerous inland lakes have a moderating effect on summer and winter temperatures. Summer temperatures are fairly uniform from year to year and show little day-to-day variation. Winter temperatures, however, display considerable day-to-day variation. Rainfall averages about 57 inches a year.

Because of the warm climate and abundance of rainfall, chemical and biological actions are rapid. The abundant rainfall removes many of the plant nutrients from the soil.

plants and animals

Plants have been the principal biological factors in the formation of soils in this survey area. Animals, insects, bacteria, and fungi furnish organic matter and bring plant nutrients from the lower to the upper horizons. Differences in the amount of organic matter, nitrogen, and plant nutrients in the soils and differences in soil structure and porosity are among those caused by plants and animals.

relief

Relief has affected the formation of soils in Pasco County primarily through its influence on soil-water relationships and its effect on erosion in the central ridge part of the county.

Three general areas—flatwoods, coastal swamps, and central ridge—are in the survey area. Some of the differences among soils in these three general areas are directly related to relief.

The soils in the flatwoods area have a high water table and are periodically wet at the surface, and they are not so highly leached as those of the central ridge. The soils in the coastal swamps are covered with water for long periods of time and in many places have a high content of organic material on the surface. The soils in the central ridge are at higher elevations than those in the flatwoods and coastal swamps. Many of the deep sandy soils on the eastern and western parts of the central ridge are excessively drained and are not influenced by a ground water table. Many of the clayey and loamy soils in the central part of the ridge are influenced by a ground water table. These soils are also much more subject to erosion than soils in other parts of the county.

time

Time is an important factor in soil formation. The physical and chemical changes brought about by climate, living organisms, and relief are slow. The length of time needed to convert raw geologic materials into soil varies according to the nature of the geologic material and the interaction of the other factors. Some basic minerals from which soils are formed weather fairly rapidly, while other minerals are chemically inert and show little change over long periods of time. The translocation of fine particles within the soil to form the various horizons is variable under different conditions, but the process always involves relatively long period of time.

In Pasco County the dominant geological materials are inert. The sands are almost pure quartz and are highly resistant to weathering. The finer textured silts and clays are the product of earlier weathering.

In terms of geologic time, relatively little time has elapsed since the material in which the soils in the survey area have developed was laid down or exposed. The loamy and clayey horizons formed in place through processes of clay translocation.

processes of soil formation

Soil morphology refers to the processes involved in the formation of soil horizons or the differentiation of soil horizons. The differentiation of horizons in soils in Pasco County is the result of accumulation of organic matter, leaching of carbonates, reduction and transfer of iron, or accumulation of silicate clay minerals or more than one of these processes.

Some organic matter has accumulated in the upper layers of most of the soils to form an A1 horizon. The quantity of organic matter is small in some of the soils, but fairly large in others.

Carbonates and salts have been leached in nearly all of the soils, but salts have not been leached in some of the tidal marsh soils. The effects of leaching have been indirect in that the leaching permitted the subsequent translocation of silicate clay materials in some soils. Most of the soils of the survey area are leached to varying degrees.

Reduction and transfer of iron have occurred in most of the soils in the survey area except the organic soils. In some of the wet soils, iron has been segregated within the deeper horizons to form reddish brown mottles and concretions. In the Kendrick soils there is evidence of wetting and clay movement or alteration in the form of a light colored, leached A2 horizon and a loamy Bt horizon that has sand grains coated and bridged with clay materials.

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glossary

ABC soil. A soil having an A, a B, and a C horizon.

Absorption field (Septic). The area of natural soil into which a subsurface system of tile or perforated pipe distributes effluent from a septic tank.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Association, soil. A group of soils geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by moist plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

	Inches
Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	More than 12

Base saturation. The degree to which material having cation exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the total cation exchange capacity.

Bedding. A method of controlling excess water in areas of soils used for citrus and other crops. The surface soil is plowed into regularly spaced elevated beds and the crops are planted on the beds. The ditches between the beds drain the excess water.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity, but is more precise in meaning.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Coarse fragments. If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) 15.2 to 38.1 centimeters (6 to 15 inches) long.

Coarse textured soil. Sand or loamy sand.

Cobblestone (or cobble). A rounded or partly rounded fragment of rock 3 to 10 inches (7.5 to 25 centimeters) in diameter.

Complex, soil. A map unit of two or more kinds of soil in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils are somewhat similar in all areas.

Compressible (in tables). Excessive decrease in volume of soft soil under load.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Depressions. An area that is six inches to two feet or lower in elevation than the surrounding area and is ponded for long periods of time.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

Drainage, surface. Runoff, or surface flow of water, from an area.

Effervescence. As used in this survey, the bubbling of carbon dioxide when dilute hydrochloric acid is applied to calcium carbonates.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes the surface.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Excess humus. Too much organic matter for intended use.

Excess salts (in tables). Excess water-soluble salts in the soil that restrict the growth of most plants.

Excess sulfur (in tables). Excessive amount of sulfur in the soil. The sulfur causes extreme acidity if the soil is drained, and the growth of most plants is restricted.

Fast intake (in tables). The rapid movement of water into the soil.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fine textured soil. Sandy clay, silty clay, and clay.

Flatwoods. Broad, nearly level, low ridges of poorly drained, dominantly sandy soils characteristically vegetated with an open forest of pine and a ground cover of sawpalmetto and pineland threeawn.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Forb. Any herbaceous plant not a grass or a sedge.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

Gravel. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.5 centimeters) in diameter. An individual piece is a pebble.

Ground water (geology). Water filling all the unblocked pores of underlying material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an upper case letter represents the major horizons. Numbers or lower case letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the *Soil Survey Manual.* The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue at the surface of a mineral soil.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil does not have a B horizon, the A horizon alone is the solum.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the Roman numeral II precedes the letter C.

R layer.—Consolidated rock beneath the soil. The rock commonly underlies a C horizon, but can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are—

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Large stones (in tables). Rock fragments 3 inches (7.5 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. The soil is not strong enough to support loads.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent.* The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Muck. Dark colored, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Munsell notation. A designation of color by degrees of the three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

No water (in tables). Too deep to ground water.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affecting the specified use.

Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow	less than 0.06 inch
Slow	0.06 to 0.20 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Ponding. Standing water on soils in closed depressions. The water can be removed only by percolation or evapotranspiration.

Poor outlets (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

Porosity. The degree to which the total volume of a soil is permeated by pores or cavities.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Range condition. The present composition of the plant community on a range site in relation to the potential natural plant community for that site. Range condition is expressed as excellent, good, fair, or poor, on the basis of how much the present plant community has departed from the potential.

Range site. An area of rangeland where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. A range site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other range sites in kind or proportion of species or total production.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Rippable. Bedrock or hardpan can be excavated using a single-tooth ripping attachment mounted on a tractor with a 200-300 draw bar horsepower rating.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharge into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Salty water (in tables.) Water that is too salty for consumption by livestock.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shear strength. A laboratory determination which is used in conjunction with other laboratory data to evaluate the load supporting capability of a soil.

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slough. A narrow to broad, usually grassy, slightly depressed, poorly defined drainageway.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 mm in equivalent diameter and ranging between specified size limits. The names and sizes of separates recognized in the United States are as follows:

	Millimeters
Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Stratified. Arranged in strata, or layers. The term refers to geologic material. Layers in soils that result form the process of soil formation are called horizons; those inherited from the parent material are called strata.

Stripcropping. Growing crops in a systematic arrangement of strips or bands which provide vegetative barriers to wind and water erosion.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the A2 horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material too thin for the specified use.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Unstable fill (in tables). Risk of caving or sloughing on banks of fill material.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Variant, soil. A soil having properties sufficiently different from those of other known soils to justify a new series name, but occurring in such a limited geographic area that creation of a new series is not justified.

Water control. Regulation of the water table according to the need of the crop or other use by means of canals, ditches, tile, pumping, or other appropriate methods.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Wetness. Soil is wet during period of use.

tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

[Recorded in the period 1951-60 at St. Leo, Florida]

Month	Temperature					Precipitation		
				Mean number of days with temperature of--			Mean number of days with rainfall of--	
	Normal monthly mean	Normal daily maximum	Normal daily minimum	90° F or higher	32° F or lower	Normal total	0.10 inch or more	0.50 inch or more
	°F	°F	°F			In		
January	61.2	70.1	49.1	0	1	2.16	5	2
February	62.8	73.7	52.0	0	1	3.05	6	3
March	66.4	77.3	54.9	1	0	4.54	7	3
April	71.5	82.6	60.7	1	0	3.65	6	3
May	76.9	88.7	66.3	14	0	3.66	7	2
June	80.6	91.3	70.6	23	0	8.65	9	4
July	81.5	91.7	72.4	25	0	9.17	13	5
August	81.8	91.7	73.0	25	0	8.12	11	4
September	80.1	89.6	71.5	18	0	7.40	9	4
October	74.1	83.0	64.5	3	0	3.17	6	3
November	66.4	77.2	56.2	9	0	1.74	3	1
December	62.0	71.7	50.3	9	*	2.08	3	2
Year	72.1	82.5	61.8	110	3	57.39	85	36

*Less than half a day.

TABLE 2.--FREEZE DATA

[Recorded at St. Leo, Florida]

Freeze threshold temperature	Mean date of last spring occurrence	Mean date of first fall occurrence	Mean number of days between dates	Years of record, spring	Number of occurrences in spring	Years of record, fall	Number of occurrences in fall
°F							
32	January 24	December 20	330	30	18	30	15
28	January 9	December 27	352	30	9	30	6
24	*	*	*	30	3	30	*
20	*	*	*	30	1	30	*
16	*	*	*	30	*	30	*

*Frequency of occurrence in either spring or fall is 1 year in 10, or less.

TABLE 3.--SOIL RATINGS AND LIMITING PROPERTIES FOR SELECTED USES, BY GENERAL SOIL MAP UNIT

[The overall rating for the soil unit is based on the rating for the most dominant soil or soils]

Map unit	Percent of survey area	Suitability for pasture	Potential for pine trees	Limitations for urban uses		
				Septic tank absorption fields	Building sites*	Recreation areas**
1. Tavares-Adamsville-Narcoossee:	13.5	Good	Moderately high	Severe	Moderate	Severe.
Tavares		Good: droughty, low fertility.	Moderately high: equipment limitations, seedling mortality.	Severe: wetness, poor filter.	Slight	Severe: too sandy.
Adamsville		Fair: wetness.	Moderately high: equipment limitations, seedling mortality.	Severe: wetness, poor filter.	Moderate: wetness.	Severe: too sandy.
Narcoossee		Good: wetness, low fertility.	Moderately high: equipment limitations, seedling mortality.	Severe: wetness, poor filter.	Moderate: wetness.	Severe: too sandy.
2. Candler-Tavares-Paola:	8.4	Fair	Moderate	Slight	Slight	Severe.
Candler		Fair: droughty, low fertility.	Moderate: equipment limitations, seedling mortality.	Slight	Slight	Severe: too sandy.
Tavares		Good: droughty, low fertility.	Moderately high: equipment limitations, seedling mortality.	Severe: wetness.	Slight	Severe: too sandy.
Paola		Poor: droughty, very low fertility.	Low: equipment limitations, seedling mortality.	Slight	Slight	Severe: too sandy.
3. Lake-Candler:	7.5	Fair	Moderately high	Slight	Slight	Severe.
Lake		Fair: droughty, low fertility.	Moderately high: equipment limitations, seedling mortality.	Slight	Slight	Severe: too sandy.
Candler		Fair: droughty, low fertility.	Moderate: equipment limitations, seedling mortality.	Slight	Slight	Severe: too sandy.

See footnotes at end of table.

TABLE 3.--SOIL RATINGS AND LIMITING PROPERTIES FOR SELECTED USES, BY GENERAL SOIL MAP UNIT--Continued

Map unit	Percent of survey area	Suitability for pasture	Potential for pine trees	Limitations for urban uses		
				Septic tank absorption fields	Building sites*	Recreation areas**
4. Tavares-Sparr-Adamsville:	7.2	Good	Moderately high	Severe	Moderate	Severe.
Tavares		Good: droughty, low fertility.	Moderately high: equipment limitations, seedling mortality.	Severe: wetness, poor filter.	Slight	Severe: too sandy.
Sparr		Good: droughty.	Moderately high: equipment limitations, seedling mortality.	Severe: wetness.	Moderate: wetness.	Severe: too sandy.
Adamsville		Fair: wetness.	Moderately high: equipment limitations, seedling mortality.	Severe: wetness, poor filter.	Moderate: wetness.	Severe: too sandy.
5. Arredondo-Sparr-Kendrick:	7.2	Good	Moderately high	Slight	Slight	Severe.
Arredondo		Good: droughty.	Moderately high: equipment limitations, seedling mortality.	Slight	Slight	Severe: too sandy.
Sparr		Good: droughty.	Moderately high: equipment limitations, seedling mortality.	Severe: wetness.	Moderate: wetness.	Severe: too sandy.
Kendrick		Good	High: equipment limitations, seedling mortality.	Moderate: percs slowly.	Slight	Severe.
6. Millhopper-Candler Variant:	1.6	Fair	Moderately high	Moderate	Slight	Severe.
Millhopper		Fair: droughty, low fertility.	Moderately high: equipment limitations, seedling mortality.	Moderate: wetness.	Slight	Severe: too sandy.
Candler Variant		Fair: droughty, low fertility.	Moderately high: equipment limitations, seedling mortality.	Slight	Slight	Severe: too sandy.

See footnotes at end of table.

TABLE 3.--SOIL RATINGS AND LIMITING PROPERTIES FOR SELECTED USES, BY GENERAL SOIL MAP UNIT--Continued

Map unit	Percent of survey area	Suitability for pasture	Potential for pine trees	Limitations for urban uses		
				Septic tank absorption fields	Building sites*	Recreation areas**
7. Nobleton-Blichton-Flemington Variant:	3.0	Good	High	Severe	Severe	Severe.
Nobleton		Good: wetness.	High	Severe: wetness, percs slowly.	Moderate: wetness.	Severe. wetness.
Blichton		Good: wetness.	High: equipment limitations.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
Flemington Variant		Good: wetness.	High: equipment limitations.	Severe: wetness, percs slowly.	Severe: wetness, shrink-swell.	Severe: wetness, percs slowly.
8. Smyrna-Sellers-Myakka:	18.9	Good	Moderately high	Severe	Severe	Severe.
Smyrna		Good: wetness.	Moderately high: equipment limitations, seedling mortality.	Severe: wetness.	Severe: wetness.	Severe: wetness, too sandy.
Sellers		Fair: wetness, ponding.	High: equipment limitations, seedling mortality.	Severe: ponding, poor filter.	Severe: wetness, ponding.	Severe: ponding.
Myakka		Good: wetness.	Moderate: equipment limitations, seedling mortality.	Severe: wetness.	Severe: wetness.	Severe: wetness, too sandy.
9. Pomona-EauGallie-Sellers:	18.4	Good	Moderately high	Severe	Severe	Severe.
Pomona		Good: wetness.	Moderately high: equipment limitations, seedling mortality.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, too sandy.
EauGallie		Good: wetness.	Moderately high: equipment limitations, seedling mortality.	Severe: wetness.	Severe: wetness.	Severe: wetness, too sandy.
Sellers		Fair: wetness, ponding.	High: equipment limitations, seedling mortality.	Severe: ponding, poor filter.	Severe: wetness, ponding.	Severe: ponding.

See footnotes at end of table.

TABLE 3.--SOIL RATINGS AND LIMITING PROPERTIES FOR SELECTED USES, BY GENERAL SOIL MAP UNIT--Continued

Map unit	Percent of survey area	Suitability for pasture	Potential for pine trees	Limitations for urban uses		
				Septic tank absorption fields	Building sites*	Recreation areas**
10. Basinger-Wauchula:	3.2	Good	Moderate	Severe	Severe	Severe.
Basinger		Good: wetness.	Moderate: equipment limitations, seedling mortality.	Severe: wetness, poor filter.	Severe: wetness.	Severe: wetness, too sandy.
Wauchula		Good: wetness.	Moderately high: equipment limitations, seedling mortality.	Severe: wetness.	Severe: wetness.	Severe: too sandy, wetness.
11. Chobee:	7.3	Good	High	Severe	Severe	Severe.
Chobee		Good: floods, wetness.	High: equipment limitations, seedling mortality.	Severe: floods, wetness, percs slowly.	Severe: wetness, floods.	Severe: wetness, floods, percs slowly.
12. Aripeka-Okeelanta-Terra Ceia:	1.4	Fair:	Moderately high	Severe	Severe	Severe.
Aripeka		Fair: wetness, flooding.	Moderately high: seedling mortality.	Severe: floods, depth to rock, wetness.	Severe: floods.	Severe: floods, too sandy.
Okeelanta		Good: wetness.	No potential	Severe: ponding, poor filter.	Severe: ponding, low strength.	Severe: excess humus, ponding.
Terra Ceia		Good: wetness.	No potential	Severe: ponding, poor filter.	Severe: ponding, low strength.	Severe: excess humus, ponding.
13. Anclote-Tavares-Pomello:	1.2	Fair	High	Severe	Severe	Severe.
Anclote		Fair: floods, wetness.	High: equipment limitations, seedling mortality.	Severe: floods, wetness, poor filter.	Severe: floods, wetness.	Severe: floods, wetness, too sandy.
Tavares		Fair: droughty, low fertility, floods.	Moderately high: equipment limitations, seedling mortality.	Severe: floods, wetness, poor filter.	Severe: floods.	Severe: floods, too sandy.

See footnotes at end of table.

TABLE 3.--SOIL RATINGS AND LIMITING PROPERTIES FOR SELECTED USES, BY GENERAL SOIL MAP UNIT--Continued

Map unit	Percent of survey area	Suitability for pasture	Potential for pine trees	Limitations for urban uses		
				Septic tank absorption fields	Building sites*	Recreation areas**
13. Anclote-Tavares-Pomello:						
Pomello		Fair: droughty, low fertility, floods.	Moderate: equipment limitations, seedling mortality.	Severe: floods, wetness, poor filter.	Severe: floods.	Severe: floods, too sandy.
14. Homosassa-Lacoochee-Weekiwachee:	1.2	Unsuitable	No potential	Severe	Severe	Severe.
Homosassa		Unsuitable: excess salt, floods, wetness.	No potential	Severe: floods, depth to rock, wetness.	Severe: floods, wetness.	Severe: floods, wetness, excess salt.
Lacoochee		Unsuitable: excess salt, floods, wetness.	No potential	Severe: floods, depth to rock, wetness.	Severe: floods, wetness.	Severe: wetness, floods.
Weekiwachee		Unsuitable: excess salt, floods, wetness.	No potential	Severe: floods, wetness.	Severe: floods, wetness, low strength.	Severe: wetness, floods, excess humus.

* Ratings apply to dwellings without basements, small commercial buildings, and local roads and streets.
** Ratings apply to camp areas, picnic areas, and playgrounds.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
1	Wauchula fine sand, 0 to 5 percent slopes	6,262	1.3
2	Pomona fine sand	33,580	7.0
3	Pineda fine sand	571	0.1
4	Felda fine sand	2,098	0.4
5	Myakka fine sand	15,919	3.3
6	Tavares sand, 0 to 5 percent slopes	37,640	7.9
7	Sparr fine sand, 0 to 5 percent slopes	15,772	3.3
8	Sellers mucky loamy fine sand	31,875	6.7
9	Ona fine sand	2,132	0.4
10	Vero fine sand	2,964	0.6
11	Adamsville fine sand	28,094	5.9
12	Astatula fine sand, 0 to 5 percent slopes	1,564	0.3
13	Candler fine sand, 0 to 5 percent slopes	29,258	6.2
14	Candler fine sand, 5 to 8 percent slopes	1,928	0.4
15	Tavares-Urban land complex, 0 to 5 percent slopes	8,843	1.9
16	Zephyr muck	7,594	1.6
17	Immokalee fine sand	3,152	0.7
18	Electra Variant fine sand, 0 to 5 percent slopes	1,909	0.4
19	Paola fine sand, 0 to 8 percent slopes	1,971	0.4
20	Aripeka fine sand	2,463	0.5
21	Smyrna fine sand	29,639	6.2
22	Basinger fine sand	3,734	0.8
23	Basinger fine sand, depressional	12,346	2.6
24	Quartzipsamments, shaped, 0 to 5 percent slopes	3,807	0.8
25	Jonesville fine sand, 0 to 5 percent slopes	1,508	0.3
26	Narcoossee fine sand	7,948	1.7
27	Anclote fine sand	2,740	0.6
28	Pits	934	0.2
29	Lacoochee complex	641	0.1
30	Okeelanta-Terra Ceia association	2,077	0.4
31	Udalfic Arents-Urban land complex	2,516	0.5
32	Lake fine sand, 0 to 5 percent slopes	19,047	4.0
34	Pompano fine sand	3,182	0.7
35	EauGallie fine sand	13,669	2.9
36	Candler-Urban land complex, 0 to 8 percent slopes	780	0.2
37	Paola-Urban land complex, 0 to 8 percent slopes	301	0.1
38	Urban land	1,539	0.3
39	Chobee soils, frequently flooded	31,704	6.7
40	Paisley fine sand	2,035	0.4
41	Pits-Dumps complex	415	0.1
42	Pomello fine sand, 0 to 5 percent slopes	3,342	0.7
43	Arredondo fine sand, 0 to 5 percent slopes	13,582	2.9
44	Arredondo fine sand, 5 to 8 percent slopes	1,095	0.2
45	Kendrick fine sand, 0 to 5 percent slopes	5,182	1.1
46	Cassia fine sand, 0 to 5 percent slopes	3,329	0.7
47	Weekiwachee muck	249	0.1
48	Lochloosa fine sand, 0 to 5 percent slopes	4,061	0.9
49	Blichton fine sand, 0 to 2 percent slopes	1,174	0.2
50	Blichton fine sand, 2 to 5 percent slopes	2,274	0.5
51	Blichton fine sand, 5 to 8 percent slopes	433	0.1
52	Samsula muck	4,154	0.9
53	Sparr fine sand, 5 to 8 percent slopes	974	0.2
54	Flemington Variant fine sand, 2 to 5 percent slopes	2,061	0.4
55	Homosassa mucky fine sandy loam	4,373	0.9
56	EauGallie-Urban land complex	247	0.1
57	Vero Variant fine sand	740	0.2
58	Tomoka muck	367	0.1
59	Newnan fine sand, 0 to 5 percent slopes	4,063	0.9
60	Palmetto-Zephyr-Sellers complex	7,699	1.6
61	Pompano fine sand, frequently flooded	879	0.2
62	Kendrick fine sand, 5 to 8 percent slopes	259	0.1
63	Delray mucky fine sand	1,849	0.4
64	Nobleton fine sand, 0 to 5 percent slopes	4,733	1.0
65	Gainesville loamy fine sand, 0 to 5 percent slopes	540	0.1
66	Micanopy fine sand, 2 to 5 percent slopes	1,981	0.4
67	Kanapaha fine sand, 0 to 5 percent slopes	285	0.1
68	Lake fine sand, 5 to 8 percent slopes	1,850	0.4
69	Millhopper fine sand, 0 to 5 percent slopes	8,076	1.7
70	Placid fine sand	1,397	0.3
71	Anclote-Tavares-Pomello association, flooded	4,076	0.9
72	Orlando fine sand, 0 to 5 percent slopes	405	0.1
73	Zolfo fine sand	2,451	0.5

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
74	Candler Variant fine sand, 0 to 5 percent slopes	1,772	0.4
75	Beaches	127	*
76	Bessie muck	121	*
	Water areas less than 40 acres	8,649	1.8
	Total land area	475,000	100.0
	Water areas more than 40 acres	19,000	
	Total county area	494,000	

* Less than 0.1 percent.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE

[Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Soil name and map symbol	Oranges	Grapefruit	Soybeans	Annual hay crops	Bahiagrass	Improved bermudagrass	Grass-clover
	Box	Box	Bu	Ton	AUM*	AUM*	AUM*
1 Wauchula	400	575	---	5.0	9.0	10.5	12.0
2 Pomona	---	---	---	---	8.0	11.5	10.0
3 Pineda	425	575	---	---	7.5	---	12.0
4 Felda	425	625	---	---	7.5	---	10.5
5 Myakka	350	550	---	5.0	9.0	10.5	12.0
6 Tavares	425	600	20	6.0	8.0	7.5	---
7 Sparr	415	615	25	6.0	9.0	10.5	---
8 Sellers	---	---	---	---	---	---	---
9 Ona	350	550	---	5.0	9.0	10.5	12.0
10 Vero	400	575	---	5.0	8.0	10.5	12.0
11 Adamsville	375	500	---	4.0	7.0	10.5	10.0
12 Astatula	350	400	---	---	3.0	---	---
13 Candler	425	625	---	6.0	7.0	8.0	---
14 Candler	400	600	---	6.0	6.5	8.0	---
15 Tavares-Urban land	---	---	---	---	---	---	---
16 Zephyr	---	---	---	---	---	---	---
17 Immokalee	350	550	---	5.0	8.0	10.5	12.0
18 Electra Variant	250	350	---	---	6.0	7.5	---
19 Paola	250	300	---	---	3.5	---	---
20 Aripeka	---	---	---	---	7.5	9.5	11.0
21 Smyrna	350	550	---	5.0	9.0	10.5	12.0

See footnote at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Oranges	Grapefruit	Soybeans	Annual hay crops	Bahiagrass	Improved bermudagrass	Grass-clover
	Box	Box	Bu	Ton	AUM*	AUM*	AUM*
22 Basinger	350	450	---	---	---	---	12.0
23 Basinger	---	---	---	---	---	---	---
24**. Quartzipsamments							
25 Jonesville	500	700	25	6.0	6.5	7.0	---
26 Narcoossee	350	450	20	6.0	6.0	10.5	---
27 Anclote	435	500	---	---	10.0	10.5	12.0
28. Pits							
29 Lacoochee	---	---	---	---	---	---	---
30:							
Okeelanta	---	---	---	---	---	---	---
Terra Ceia	---	---	---	---	---	---	---
31 Udalfic Arents-Urban land	---	---	---	---	---	---	---
32 Lake	500	700	25	6.0	4.5	7.5	---
34 Pompano	300	400	---	---	8.0	---	10.0
35 EauGallie	375	575	---	5.0	8.0	10.5	12.0
36 Candler-Urban land	---	---	---	---	---	---	---
37 Paola-Urban land	---	---	---	---	---	---	---
38. Urban land							
39 Chobee	425	500	---	---	---	---	15.0
40 Paisley	---	---	25	---	10.0	11.0	12.0
41 Pits-Dumps	---	---	---	---	---	---	---
42 Pomello	250	400	---	---	6.0	7.5	---
43 Arredondo	450	650	20	6.0	8.0	8.0	---
44 Arredondo	450	650	20	6.0	8.0	8.0	---

See footnote at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Oranges	Grapefruit	Soybeans	Annual hay crops	Bahiagrass	Improved bermudagrass	Grass-clover
	Box	Box	Bu	Ton	AUM*	AUM*	AUM*
45------------------------ Kendrick	525	725	25	6.0	10.0	8.0	---
46------------------------ Cassia	250	350	---	---	6.0	7.5	---
47------------------------ Weekiwachee	---	---	---	---	---	---	---
48------------------------ Lochloosa	475	675	---	4.0	10.0	10.5	---
49, 50-------------------- Blichton	400	600	25	4.0	10.0	10.5	12.0
51------------------------ Blichton	400	600	20	4.0	10.0	10.5	12.0
52------------------------ Samsula	---	---	---	---	12.0	---	---
53------------------------ Sparr	415	615	25	4.0	9.0	10.6	---
54------------------------ Flemington Variant	475	675	25	4.0	10.0	7.5	---
55------------------------ Homosassa	---	---	---	---	---	---	---
56------------------------ EauGallie-Urban land	---	---	---	---	---	---	---
57------------------------ Vero Variant	400	575	---	5.0	8.0	10.5	12.0
58------------------------ Tomoka	---	---	---	---	12.0	---	15.0
59------------------------ Newnan	350	550	27	6.0	9.0	---	---
60------------------------ Palmetto-Zephyr-Sellers	---	---	---	---	---	---	---
61------------------------ Pompano	---	---	---	---	---	---	---
62------------------------ Kendrick	525	725	25	6.0	10.0	8.0	---
63------------------------ Delray	---	---	---	---	10.0	10.5	12.0
64------------------------ Nobleton	475	675	25	6.0	10.0	10.5	---
65------------------------ Gainesville	500	700	25	6.0	9.0	8.0	---
66------------------------ Micanopy	475	675	25	6.0	10.0	10.5	---
67------------------------ Kanapaha	475	675	25	4.0	9.0	10.5	---
68------------------------ Lake	500	700	25	6.0	4.5	7.5	---

See footnote at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Oranges	Grapefruit	Soybeans	Annual hay crops	Bahiagrass	Improved bermudagrass	Grass-clover
	Box	Box	Bu	Ton	AUM*	AUM*	AUM*
69 Millhopper	450	650	28	6.0	8.5	10.5	---
70 Placid	435	500	---	4.0	10.0	10.5	10.5
71:							
Anclote	---	---	---	---	---	---	---
Tavares	---	---	---	---	8.0	---	---
Pomello	---	---	---	---	3.5	---	---
72 Orlando	500	700	25	6.0	9.0	---	---
73 Zolfo	375	500	25	4.0	7.0	10.5	10.0
74 Candler Variant	500	700	28	6.0	8.0	10.5	---
75. Beaches							
76 Bessie	---	---	---	---	---	---	---

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

TABLE 6.--CAPABILITY CLASSES AND SUBCLASSES

[Miscellaneous areas are excluded. Absence of an entry indicates no acreage]

Class	Total acreage	Major management concerns (Subclass)			
		Erosion (e)	Wetness (w)	Soil problem (s)	Climate (c)
		Acres	Acres	Acres	Acres
I	---	---	---	---	---
II	15,957	5,182	10,775	---	---
III	150,249	259	67,385	82,605	---
IV	166,590	---	114,444	52,146	---
V	31,704	---	31,704	---	---
VI	19,829	---	3,121	16,708	---
VII	57,129	---	57,129	---	---
VIII	5,511	---	5,511	---	---

TABLE 7.--RANGELAND PRODUCTIVITY

[Only the soils suited to use as rangeland are listed]

Soil name and map symbol	Range site	Total production (dry weight), by kind of year		
		Favorable	Normal	Unfavorable
		Lb/acre		
1 Wauchula	South Florida Flatwoods	6,000	4,500	3,000
2 Pomona	South Florida Flatwoods	6,000	4,500	3,000
3 Pineda	Slough	8,000	6,000	4,000
4 Felda	Slough	8,000	6,000	4,000
5 Myakka	South Florida Flatwoods	6,000	4,500	3,000
6 Tavares	Longleaf Pine-Turkey Oak Hills	4,000	3,000	2,000
8 Sellers	Fresh Marsh	10,000	8,000	5,000
9 Ona	South Florida Flatwoods	6,000	4,500	3,000
10 Vero	South Florida Flatwoods	6,000	4,500	3,000
11 Adamsville	South Florida Flatwoods	6,000	4,500	3,000
12 Astatula	Sand Pine Hills	3,500	2,000	1,500
13, 14 Candler	Longleaf Pine-Turkey Oak Hills	4,000	3,000	2,000
16 Zephyr	Fresh Marsh	10,000	8,000	5,000
17 Immokalee	South Florida Flatwoods	6,000	4,500	3,000
18 Electra Variant	South Florida Flatwoods	6,000	4,500	3,000
19 Paola	Sand Pine Hills	3,500	2,000	1,500
20 Aripeka	Cabbage Palm Flatwoods	7,500	5,500	4,000
21 Smyrna	South Florida Flatwoods	6,000	4,500	3,000
22 Basinger	Slough	8,000	6,000	4,000
23 Basinger	Maidencane Pond	9,000	7,000	5,000
25 Jonesville	Longleaf Pine-Turkey Oak Hills	4,000	3,000	2,000
26 Narcoossee	South Florida Flatwoods	6,000	4,500	3,000

TABLE 7.--RANGELAND PRODUCTIVITY--Continued

Soil name and map symbol	Range site	Total production (dry weight), by kind of year		
		Favorable	Normal	Unfavorable
		Lb/acre		
27 Anclote	Maidencane Pond	9,000	7,000	5,000
29 Lacoochee	Salt Marsh	9,000	7,500	5,500
30:				
Okeelanta	Fresh Marsh	10,000	8,000	5,000
Terra Ceia	Fresh Marsh	10,000	8,000	5,000
32 Lake	Longleaf Pine-Turkey Oak Hills	4,000	3,000	2,000
34 Pompano	Slough	8,000	6,000	4,000
35 EauGallie	South Florida Flatwoods	6,000	4,500	3,000
40 Paisley	South Florida Flatwoods	6,000	4,500	3,000
42 Pomello	Sand Pine Hills	3,500	2,000	1,500
43, 44 Arredondo	Mixed Hardwood-Pine Forest	4,500	4,000	3,000
46 Cassia	Sand Pine Hills	3,500	2,000	1,500
47 Weekiwachee	Salt Marsh	9,000	7,500	5,500
52 Samsula	Fresh Marsh	10,000	8,000	5,000
55 Homosassa	Salt Marsh	9,000	7,500	5,500
57 Vero	South Florida Flatwoods	6,000	4,500	3,000
58 Tomoka	Fresh Marsh	10,000	8,000	5,000
59 Newnan	South Florida Flatwoods	6,000	4,500	3,000
60:				
Palmetto	Slough	8,000	6,000	4,000
Zephyr	Fresh Marsh	10,000	8,000	5,000
Sellers	Fresh Marsh	10,000	8,000	5,000
63 Delray	Fresh Marsh	10,000	8,000	5,000
65 Gainesville	Longleaf Pine-Turkey Oak Hills	4,000	3,000	2,000
68 Lake	Longleaf Pine-Turkey Oak Hills	4,000	3,000	2,000
70 Placid	Maidencane Pond	9,000	7,000	5,000

TABLE 7.--RANGELAND PRODUCTIVITY--Continued

Soil name and map symbol	Range site	Total production (dry weight), by kind of year		
		Favorable	Normal	Unfavorable
		Lb/acre		
72------------------------- Orlando	Longleaf Pine-Turkey Oak Hills	4,000	3,000	2,000
73------------------------- Zolfo	South Florida Flatwoods	6,000	4,500	3,000
74------------------------- Candler	Longleaf Pine-Turkey Oak Hills	4,000	3,000	2,000

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available. The site index was determined at age 25 years for South Florida slash pine and at age 50 years for other species]

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	
1 Wauchula	3w	Slight	Moderate	Moderate	Moderate	Slash pine Longleaf pine South Florida slash pine	80 65 45	Slash pine, South Florida slash pine.
2 Pomona	3w	Slight	Moderate	Moderate	Moderate	Slash pine Loblolly pine Longleaf pine South Florida slash pine	80 80 70 45	Slash pine, South Florida slash pine.
3 Pineda	3w	Slight	Moderate	Severe	Moderate	Slash pine Longleaf pine South Florida slash pine	80 70 45	Slash pine, South Florida slash pine.
4 Felda	3w	Slight	Moderate	Severe	Moderate	Slash pine Longleaf pine South Florida slash pine	80 65 45	Slash pine, South Florida slash pine.
5 Myakka	4w	Slight	Moderate	Moderate	Moderate	Slash pine Longleaf pine South Florida slash pine	70 60 35	Slash pine, South Florida slash pine.
6 Tavares	3s	Slight	Moderate	Moderate	Moderate	Slash pine Longleaf pine	80 70	Slash pine, South Florida slash pine, longleaf pine.
7 Sparr	3s	Slight	Moderate	Moderate	Moderate	Slash pine Loblolly pine Longleaf pine Live oak	80 80 70 ---	Slash pine, loblolly pine, South Florida slash pine, longleaf pine.
8 Sellers	2w	Slight	Severe	Severe	Moderate	Slash pine Pond pine	90 60	Slash pine, South Florida slash pine.
9 Ona	3w	Slight	Moderate	Moderate	Moderate	Slash pine Longleaf pine South Florida slash pine	80 70 45	Slash pine, South Florida slash pine.
10 Vero	3w	Slight	Moderate	Moderate	Moderate	Slash pine Longleaf pine South Florida slash pine	80 70 45	Slash pine, South Florida slash pine.
11 Adamsville	3w	Slight	Moderate	Moderate	Moderate	Slash pine Longleaf pine	80 65	Slash pine, South Florida slash pine.
12 Astatula	5s	Slight	Severe	Moderate	Slight	Sand pine	60	Sand pine.
13, 14 Candler	4s	Slight	Moderate	Moderate	Moderate	Sand pine Longleaf pine Slash pine	80 60 70	Sand pine, slash pine.
16 Zephyr*	4w	Slight	Severe	Severe	Severe	Baldcypress	---	Slash pine, South Florida slash pine.

See footnotes at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	
17 Immokalee	3w	Slight	Moderate	Moderate	Moderate	Slash pine Longleaf pine South Florida slash pine	80 70 45	Slash pine, South Florida slash pine.
18 Electra Variant	4s	Slight	Moderate	Severe	Slight	Slash pine Sand pine Longleaf pine	70 70 65	Slash pine, South Florida slash pine, sand pine, longleaf pine.
19 Paola	5s	Slight	Moderate	Severe	Slight	Sand pine	60	Sand pine.
20 Aripeka	3w	Slight	Slight	Moderate	Moderate	Slash pine Longleaf pine South Florida slash pine	80 65 45	Slash pine, South Florida slash pine.
21 Smyrna	3w	Slight	Moderate	Moderate	Moderate	Slash pine Longleaf pine South Florida slash pine	80 70 45	Slash pine, South Florida slash pine.
22 Basinger*	4w	Slight	Severe	Severe	Severe	Pond pine	60	South Florida slash pine, slash pine.
23 Basinger*	4w	Slight	Severe	Severe	Severe	Pond pine	60	South Florida slash pine, slash pine.
25 Jonesville	3s	Slight	Moderate	Moderate	Moderate	Slash pine Longleaf pine	80 65	Slash pine, South Florida slash pine, longleaf pine.
26 Narcoossee	3w	Slight	Moderate	Moderate	Moderate	Slash pine Longleaf pine South Florida slash pine	80 70 45	Slash pine, South Florida slash pine.
27 Anclote	2w	Slight	Severe	Severe	Moderate	Slash pine Longleaf pine	90 75	Slash pine, South Florida slash pine.
32 Lake	3s	Slight	Moderate	Moderate	Moderate	Slash pine Longleaf pine	80 65	Slash pine, South Florida slash pine, longleaf pine.
34 Pompano	4w	Slight	Severe	Severe	Moderate	Slash pine South Florida slash pine	70 35	Slash pine, South Florida slash pine.
35 EauGallie	3w	Slight	Moderate	Moderate	Moderate	Slash pine Longleaf pine	80 70	Slash pine, South Florida slash pine.
40 Paisley	1w	Slight	Severe	Severe	Severe	Slash pine Loblolly pine	100 100	Slash pine, loblolly pine, South Florida slash pine.
42 Pomello	4s	Slight	Moderate	Severe	Moderate	Slash pine Longleaf pine Sand pine South Florida slash pine	70 60 60 35	Sand pine, South Florida slash pine, longleaf pine.
43, 44 Arredondo	3s	Slight	Moderate	Slight	Moderate	Slash pine Loblolly pine Longleaf pine	80 80 70	Slash pine, South Florida slash pine, longleaf pine.

See footnotes at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	
45 Kendrick	2s	Slight	Moderate	Moderate	Moderate	Slash pine Loblolly pine Longleaf pine	90 90 75	Slash pine, loblolly pine, longleaf pine, South Florida slash pine.
46 Cassia	4s	Slight	Moderate	Severe	Moderate	Slash pine Longleaf pine South Florida slash pine	70 60 35	Sand pine, longleaf pine, slash pine, South Florida slash pine.
48 Lochloosa	2o	Slight	Slight	Slight	Slight	Slash pine Loblolly pine	90 90	Slash pine, loblolly pine, South Florida slash pine.
49, 50, 51 Blichton	2w	Slight	Moderate	Slight	Moderate	Slash pine Loblolly pine Longleaf pine	90 90 80	Slash pine, loblolly pine, South Florida slash pine.
53 Sparr	3s	Slight	Moderate	Moderate	Moderate	Slash pine Loblolly pine Longleaf pine	80 80 70	Slash pine, loblolly pine, South Florida slash pine, longleaf pine.
54 Flemington Variant	2w	Slight	Moderate	Slight	Moderate	Slash pine Loblolly pine Longleaf pine	90 90 75	Slash pine, loblolly pine, South Florida slash pine.
57 Vero Variant	3w	Slight	Moderate	Moderate	Moderate	Slash pine Longleaf pine South Florida slash pine	80 70 45	Slash pine, South Florida slash pine.
59 Newnan	3w	Slight	Moderate	Moderate	Moderate	Slash pine Loblolly pine Longleaf pine	80 80 65	Slash pine, South Florida slash pine.
60**: Palmetto	3w	Slight	Severe	Severe	Severe	Slash pine Longleaf pine South Florida slash pine	80 70 40	Slash pine, South Florida slash pine.
Zephyr*	2w	Slight	Severe	Severe	Severe	Baldcypress	---	Slash pine, South Florida slash pine.
Sellers	2w	Slight	Severe	Severe	Moderate	Slash pine Pond pine	90 60	Slash pine, South Florida slash pine.
62 Kendrick	2s	Slight	Moderate	Moderate	Moderate	Slash pine Loblolly pine Longleaf pine	90 90 75	Slash pine, loblolly pine, South Florida slash pine.
63 Delray*	3w	Slight	Severe	Severe	Severe	Pond pine	65	Slash pine, South Florida slash pine.
64 Nobleton	2o	Slight	Slight	Slight	Slight	Slash pine Loblolly pine Longleaf pine	90 90 75	Slash pine, loblolly pine, South Florida slash pine.
65 Gainesville	3s	Slight	Slight	Slight	Moderate	Slash pine Loblolly pine Longleaf pine	80 80 70	Slash pine, loblolly pine, longleaf pine, South Florida slash pine.
66 Micanopy	2o	Slight	Slight	Slight	Slight	Slash pine Loblolly pine Longleaf pine	90 90 75	Slash pine, loblolly pine, South Florida slash pine.

See footnotes at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	
67----------------- Kanapaha	3w	Slight	Moderate	Slight	Moderate	Slash pine----------	80	Slash pine, South Florida slash pine.
						Loblolly pine-------	80	
						Longleaf pine-------	70	
						South Florida slash pine --------------	45	
68----------------- Lake	3s	Slight	Moderate	Moderate	Moderate	Slash pine----------	80	Slash pine, South Florida slash pine, longleaf pine.
						Longleaf pine-------	65	
69----------------- Millhopper	3s	Slight	Moderate	Moderate	Moderate	Slash pine----------	80	Slash pine, South Florida slash pine, longleaf pine.
						Loblolly pine-------	80	
						Longleaf pine-------	65	
70----------------- Placid*	2w	Slight	Severe	Severe	Severe	Slash pine----------	90	Slash pine, South Florida slash pine.
						Longleaf pine-------	80	
						South Florida slash pine --------------	55	
71**:								
Anclote*----------	---	Slight	Severe	Severe	Moderate	Sweetgum------------	---	Slash pine, South Florida slash pine.
						Water oak-----------	---	
Tavares----------	3s	Slight	Moderate	Moderate	Moderate	Slash pine----------	80	Slash pine, South Florida slash pine, longleaf pine.
						Longleaf pine-------	65	
						South Florida slash pine --------------	45	
Pomello----------	4s	Slight	Moderate	Severe	Moderate	Slash pine----------	70	Slash pine, South Florida slash pine, longleaf pine, sand pine.
						Longleaf pine-------	60	
						Sand pine-----------	60	
						South Florida slash pine --------------	35	
72----------------- Orlando	3s	Slight	Moderate	Moderate	Moderate	Slash pine----------	80	Slash pine, South Florida slash pine, longleaf pine.
						Longleaf pine-------	65	
73----------------- Zolfo	3w	Slight	Moderate	Moderate	Moderate	Slash pine----------	80	Slash pine, South Florida slash pine.
						Longleaf pine-------	65	
74----------------- Candler Variant	3s	Slight	Moderate	Moderate	Moderate	Slash pine----------	80	Slash pine, South Florida slash pine, longleaf pine.
						Longleaf pine-------	65	

* Tree planting is feasible only on areas with adequate surface drainage.

** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
1 Wauchula	Severe: too sandy, wetness.	Severe: too sandy, wetness.	Severe: too sandy, wetness.	Severe: too sandy, wetness.	Severe: wetness.
2 Pomona	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness.
3 Pineda	Severe: floods, wetness, percs slowly.	Severe: wetness, too sandy, percs slowly.	Severe: too sandy, wetness, percs slowly.	Severe: wetness, too sandy.	Severe: wetness, droughty.
4 Felda	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: wetness, too sandy.
5 Myakka	Severe: too sandy, wetness.	Severe: too sandy, wetness.	Severe: too sandy, wetness.	Severe: too sandy, wetness.	Severe: wetness.
6 Tavares	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
7 Sparr	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: wetness, droughty.
8 Sellers	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
9 Ona	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness.
10 Vero	Severe: wetness, percs slowly, too sandy.	Severe: wetness, too sandy, percs slowly.	Severe: too sandy, wetness, percs slowly.	Severe: wetness, too sandy.	Severe: wetness.
11 Adamsville	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty, too sandy.
12 Astatula	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
13 Candler	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
14 Candler	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Severe: droughty.
15*: Tavares	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
Urban land.					
16 Zephyr	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: excess humus, ponding.	Severe: ponding, excess humus.	Severe: ponding, excess humus.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
17 Immokalee	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness, droughty.
18 Electra Variant	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
19 Paola	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
20 Aripeka	Severe: floods, too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: wetness, droughty, floods.
21 Smyrna	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness.
22 Basinger	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness.
23 Basinger	Severe: ponding, too sandy.	Severe: ponding, too sandy.	Severe: too sandy, ponding.	Severe: ponding, too sandy.	Severe: ponding.
24*. Quartzipsamments					
25 Jonesville	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
26 Narcoossee	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
27 Anclote	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
28*. Pits					
29* Lacoochee	Severe: floods, wetness.	Severe: wetness, excess salt.	Severe: wetness, floods.	Severe: wetness.	Severe: excess salt, wetness, floods.
30*: Okeelanta	Severe: excess humus, ponding.	Severe: excess humus, ponding.	Severe: excess humus, ponding.	Severe: excess humus, ponding.	Severe: ponding, excess humus.
Terra Ceia	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: excess humus, ponding.	Severe: ponding, excess humus.	Severe: ponding, excess humus.
31*: Udalfic Arents.					
Urban land.					
32 Lake	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
34 Pompano	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness, droughty.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
35-------------------- EauGallie	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: wetness, droughty.
36*: Candler--------------	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
Urban land.					
37*: Paola----------------	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
Urban land.					
38*. Urban land					
39*------------------- Chobee	Severe: floods, wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: floods, wetness, percs slowly.	Severe: wetness.	Severe: wetness, floods.
40-------------------- Paisley	Severe: floods, wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness.
41*: Pits.					
Dumps.					
42-------------------- Pomello	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
43-------------------- Arredondo	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty.
44-------------------- Arredondo	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Moderate: droughty.
45-------------------- Kendrick	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty.
46-------------------- Cassia	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: wetness, droughty.
47-------------------- Weekiwachee	Severe: floods, wetness, excess humus.	Severe: wetness, excess humus, excess salt.	Severe: excess humus, wetness, floods.	Severe: wetness, excess humus.	Severe: excess salt, excess sulfur, wetness.
48-------------------- Lochloosa	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty.
49, 50---------------- Blichton	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
51-------------------- Blichton	Severe: wetness.	Severe: wetness.	Severe: slope, wetness.	Severe: wetness.	Severe: wetness.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
52-------------------- Samsula	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: excess humus, ponding.	Severe: ponding, excess humus.	Severe: ponding, excess humus.
53-------------------- Sparr	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Moderate: wetness, droughty.
54-------------------- Flemington Variant	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, erodes easily.	Severe: wetness.
55-------------------- Homosassa	Severe: floods, wetness, excess salt.	Severe: wetness, excess salt.	Severe: wetness, floods, excess salt.	Severe: wetness.	Severe: excess salt, excess sulfur, wetness.
56*:					
EauGallie------------	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: wetness, droughty.
Urban land.					
57-------------------- Vero Variant	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness.
58-------------------- Tomoka	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: excess humus, ponding.	Severe: ponding, excess humus.	Severe: ponding, excess humus.
59-------------------- Newnan	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: wetness, droughty, too sandy.
60*:					
Palmetto-------------	Severe: ponding, too sandy.	Severe: ponding, too sandy.	Severe: too sandy, ponding.	Severe: ponding, too sandy.	Severe: ponding.
Zephyr---------------	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: excess humus, ponding.	Severe: ponding, excess humus.	Severe: ponding, excess humus.
Sellers--------------	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
61-------------------- Pompano	Severe: floods, wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness.
62-------------------- Kendrick	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Moderate: droughty.
63-------------------- Delray	Severe: ponding, too sandy.	Severe: ponding, too sandy.	Severe: ponding.	Severe: ponding, too sandy.	Severe: ponding.
64-------------------- Nobleton	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: wetness, droughty.
65-------------------- Gainesville	Slight----------	Slight----------	Moderate: slope.	Slight------------	Moderate: droughty.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
66-------------------- Micanopy	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: wetness.
67-------------------- Kanapaha	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness, droughty.
68-------------------- Lake	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Severe: droughty.
69-------------------- Millhopper	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty.
70-------------------- Placid	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness.
71*: Anclote--------------	Severe: floods, wetness, too sandy.	Severe: floods, wetness, too sandy.	Severe: too sandy, wetness, floods.	Severe: wetness, too sandy, floods.	Severe: wetness, floods.
Tavares--------------	Severe: floods, too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
Pomello--------------	Severe: floods, too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
72-------------------- Orlando	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty, too sandy.
73-------------------- Zolfo	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty, too sandy.
74-------------------- Candler Variant	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty.
75*. Beaches					
76-------------------- Bessie	Severe: floods, wetness, percs slowly.	Severe: wetness, excess humus, excess salt.	Severe: excess humus, wetness, floods.	Severe: wetness, excess humus.	Severe: excess salt, wetness, floods.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--WILDLIFE HABITAT POTENTIALS

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
1 Wauchula	Poor	Poor	Poor	Poor	Poor	Poor	Very poor.	Poor	Poor	Poor.
2 Pomona	Poor	Fair	Fair	Poor	Fair	Fair	Fair	Fair	Fair	Fair.
3 Pineda	Poor	Fair	Fair	Poor	Poor	Good	Fair	Fair	Poor	Fair.
4 Felda	Poor	Fair	Fair	Poor	Fair	Fair	Fair	Fair	Poor	Fair.
5 Myakka	Poor	Fair	Good	Poor	Fair	Fair	Poor	Fair	Fair	Poor.
6 Tavares	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
7 Sparr	Poor	Fair	Good	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
8 Sellers	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
9 Ona	Poor	Fair	Fair	Poor	Fair	Fair	Fair	Fair	Fair	Fair.
10 Vero	Poor	Poor	Poor	Poor	Good	Fair	Poor	Poor	Fair	Poor.
11 Adamsville	Poor	Poor	Fair	Fair	Fair	Poor	Poor	Poor	Fair	Poor.
12 Astatula	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
13, 14 Candler	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
15*:										
Tavares	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Urban land.										
16 Zephyr	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
17 Immokalee	Poor	Fair	Good	Poor	Fair	Fair	Poor	Fair	Fair	Poor.
18 Electra Variant	Poor	Poor	Fair	Poor	Poor	Poor	Poor	Poor	Poor	Poor.
19 Paola	Poor	Poor	Fair	Very poor.	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
20 Aripeka	Poor	Fair	Fair	Poor	Fair	Poor	Poor	Fair	Fair	Poor.
21 Smyrna	Poor	Fair	Fair	Poor	Fair	Fair	Fair	Fair	Fair	Fair.

See footnote at end of table.

TABLE 10.--WILDLIFE HABITAT POTENTIALS--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
22------------------ Basinger	Poor	Poor	Fair	Poor	Poor	Good	Fair	Poor	Poor	Fair.
23------------------ Basinger	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
24*. Quartzipsamments										
25------------------ Jonesville	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
26------------------ Narcoossee	Poor	Poor	Fair	Fair	Fair	Poor	Poor	Poor	Fair	Poor.
27------------------ Anclote	Very poor.	Poor	Poor	Fair	Poor	Good	Good	Poor	Fair	Good.
28*. Pits										
29*----------------- Lacoochee	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor.
30*:										
Okeelanta----------	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
Terra Ceia---------	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
31*:										
Udalfic Arents.										
Urban land.										
32------------------ Lake	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
34------------------ Pompano	Poor	Fair	Poor	Poor	Poor	Fair	Fair	Poor	Poor	Fair.
35------------------ EauGallie	Poor	Poor	Poor	Poor	Poor	Poor	Very poor.	Poor	Poor	Poor.
36*:										
Candler------------	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Urban land.										
37*:										
Paola--------------	Poor	Poor	Fair	Very poor.	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Urban land.										
38*. Urban land										
39*----------------- Chobee	Poor	Poor	Poor	Fair	Poor	Good	Good	Poor	Poor	Good.
40------------------ Paisley	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.

See footnote at end of table.

TABLE 10.--WILDLIFE HABITAT POTENTIALS--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
41*: Pits.										
Dumps.										
42----------------- Pomello	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
43, 44------------- Arredondo	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
45----------------- Kendrick	Poor	Fair	Good	Fair	Good	Poor	Very poor.	Fair	Good	Very poor.
46----------------- Cassia	Very poor.	Poor	Poor	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.
47----------------- Weekiwachee	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Fair	Good	Very poor.	Very poor.	Good.
48----------------- Lochloosa	Fair	Fair	Good	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
49----------------- Blichton	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
50, 51------------- Blichton	Poor	Fair	Fair	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
52----------------- Samsula	Very poor.	Very poor.	Poor	Fair	Very poor.	Good	Good	Very poor.	Poor	Good.
53----------------- Sparr	Poor	Fair	Good	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
54----------------- Flemington Variant	Poor	Good	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
55----------------- Homosassa	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Fair	Good	Very poor.	Very poor.	Good.
56*: EauGallie----------	Poor	Poor	Poor	Poor	Poor	Poor	Very poor.	Poor	Poor	Poor.
Urban land.										
57----------------- Vero Variant	Poor	Poor	Poor	Poor	Good	Fair	Poor	Poor	Fair	Poor.
58----------------- Tomoka	Very poor.	Poor	Poor	Fair	Poor	Good	Good	Poor	Poor	Good.
59----------------- Newnan	Poor	Poor	Fair	Fair	Fair	Poor	Very poor.	Poor	Fair	Very poor.
60*: Palmetto-----------	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
Zephyr-------------	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
Sellers------------	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.

See footnote at end of table.

TABLE 10.--WILDLIFE HABITAT POTENTIALS--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
61----------------- Pompano	Very poor.	Very poor.	Poor	Fair	Poor	Fair	Fair	Very poor.	Poor	Fair.
62----------------- Kendrick	Poor	Fair	Good	Fair	Good	Poor	Very poor.	Fair	Good	Very poor.
63----------------- Delray	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
64----------------- Nobleton	Fair	Fair	Good	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
65----------------- Gainesville	Fair	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
66----------------- Micanopy	Fair	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
67----------------- Kanapaha	Poor	Fair	Fair	Fair	Fair	Poor	Poor	Fair	Fair	Poor.
68----------------- Lake	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
69----------------- Millhopper	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
70----------------- Placid	Poor	Fair	Fair	Poor	Fair	Good	Good	Fair	Fair	Good.
71*:										
Anclote-----------	Very poor.	Very poor.	Poor	Fair	Poor	Good	Good	Very poor.	Poor	Good.
Tavares-----------	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Pomello-----------	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
72----------------- Orlando	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
73----------------- Zolfo	Poor	Poor	Fair	Fair	Fair	Poor	Poor	Poor	Fair	Poor.
74----------------- Candler Variant	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
75*. Beaches										
76----------------- Bessie	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--BUILDING SITE DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
1 Wauchula	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
2 Pomona	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
3 Pineda	Severe: cutbanks cave, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: wetness.	Severe: wetness, droughty.
4 Felda	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
5 Myakka	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
6 Tavares	Severe: cutbanks cave.	Slight	Moderate: wetness.	Slight	Slight	Severe: droughty.
7 Sparr	Severe: cutbanks cave.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, droughty.
8 Sellers	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
9 Ona	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
10 Vero	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
11 Adamsville	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: droughty, too sandy.
12 Astatula	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Severe: droughty.
13 Candler	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Severe: droughty.
14 Candler	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Severe: droughty.
15*: Tavares	Severe: cutbanks cave.	Slight	Moderate: wetness.	Slight	Slight	Severe: droughty.
Urban land.						
16 Zephyr	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding, excess humus.
17 Immokalee	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, droughty.

See footnote at end of table.

TABLE 11.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
18 Electra Variant	Severe: cutbanks cave, wetness.	Slight	Severe: wetness.	Slight	Slight	Severe: droughty.
19 Paola	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Severe: droughty.
20 Aripeka	Severe: depth to rock, wetness.	Severe: floods.	Severe: floods, wetness, depth to rock.	Severe: floods.	Severe: floods.	Moderate: wetness, droughty, floods.
21 Smyrna	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
22 Basinger	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
23 Basinger	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
24*. Quartzipsamments						
25 Jonesville	Severe: cutbanks cave.	Slight	Moderate	Slight	Slight	Severe: droughty.
26 Narcoossee	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Severe: droughty.
27 Anclote	Severe: wetness, cutbanks cave.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
28*. Pits						
29* Lacoochee	Severe: depth to rock, wetness.	Severe: floods, wetness.	Severe: floods, wetness, depth to rock.	Severe: floods, wetness.	Severe: wetness, floods.	Severe: excess salt, wetness, floods.
30*: Okeelanta	Severe: cutbanks cave, excess humus, ponding.	Severe: ponding, low strength.	Severe: ponding.	Severe: ponding, low strength.	Severe: low strength, ponding.	Severe: ponding, excess humus.
Terra Ceia	Severe: excess humus, ponding.	Severe: ponding, low strength.	Severe: ponding.	Severe: ponding, low strength.	Severe: ponding, low strength.	Severe: ponding, excess humus.
31*: Udalfic Arents.						
Urban land.						
32 Lake	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Severe: droughty.
34 Pompano	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, droughty.

See footnote at end of table.

TABLE 11.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
35---------------- EauGallie	Severe: wetness, cutbanks cave.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, droughty.
36*:						
Candler----------	Severe: cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Severe: droughty.
Urban land.						
37*:						
Paola------------	Severe: cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Severe: droughty.
Urban land.						
38*. Urban land						
39*--------------- Chobee	Severe: wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: wetness, floods.	Severe: wetness, floods.
40---------------- Paisley	Severe: wetness.	Severe: floods, wetness, shrink-swell.	Severe: floods, wetness, shrink-swell.	Severe: floods, wetness, shrink-swell.	Severe: low strength, wetness, shrink-swell.	Severe: wetness.
41*:						
Pits.						
Dumps.						
42---------------- Pomello	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Severe: droughty.
43---------------- Arredondo	Severe: cutbanks cave.	Slight---------	Slight---------	Slight---------	Slight---------	Moderate: droughty.
44---------------- Arredondo	Severe: cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Moderate: droughty.
45---------------- Kendrick	Severe: cutbanks cave.	Slight---------	Slight---------	Slight---------	Slight---------	Moderate: droughty.
46---------------- Cassia	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, droughty.
47---------------- Weekiwachee	Severe: cutbanks cave, excess humus, wetness.	Severe: floods, wetness, low strength.	Severe: floods, wetness.	Severe: floods, wetness, low strength.	Severe: wetness, floods.	Severe: excess salt, excess sulfur, wetness.
48---------------- Lochloosa	Severe: cutbanks cave.	Slight---------	Moderate: wetness.	Slight---------	Slight---------	Moderate: droughty.
49, 50, 51-------- Blichton	Severe: cutbanks cave, wetness.	Severe: wetness	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
52---------------- Samsula	Severe: cutbanks cave, excess humus, ponding.	Severe: ponding, low strength.	Severe: ponding.	Severe: ponding, low strength.	Severe: ponding.	Severe: ponding, excess humus.
53---------------- Sparr	Severe: cutbanks cave.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Moderate: wetness.	Moderate: wetness, droughty.

See footnote at end of table.

TABLE 11.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
54---------------- Flemington Variant	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell, wetness.	Severe: wetness.
55---------------- Homosassa	Severe: depth to rock, cutbanks cave, wetness.	Severe: floods, wetness.	Severe: floods, wetness, depth to rock.	Severe: floods, wetness.	Severe: wetness, floods.	Severe: excess salt, excess sulfur, wetness.
56*:						
EauGallie--------	Severe: wetness, cutbanks cave.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, droughty.
Urban land.						
57---------------- Vero Variant	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
58---------------- Tomoka	Severe: cutbanks cave, excess humus, ponding.	Severe: ponding, low strength.	Severe: ponding.	Severe: ponding, low strength.	Severe: ponding.	Severe: ponding, excess humus.
59---------------- Newnan	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, droughty, too sandy.
60*:						
Palmetto---------	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
Zephyr-----------	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding, excess humus.
Sellers----------	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
61---------------- Pompano	Severe: cutbanks cave, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: wetness, floods.	Severe: wetness, floods.
62---------------- Kendrick	Severe: cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Moderate: droughty.
63---------------- Delray	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
64---------------- Nobleton	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, droughty.
65---------------- Gainesville	Severe: cutbanks cave.	Slight---------	Slight---------	Slight---------	Slight---------	Moderate: droughty.
66---------------- Micanopy	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Moderate: wetness.
67---------------- Kanapaha	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, droughty.

See footnote at end of table.

TABLE 11.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
68 Lake	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Severe: droughty.
69 Millhopper	Severe: cutbanks cave.	Slight	Moderate: wetness.	Slight	Slight	Moderate: droughty.
70 Placid	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
71*:						
Anclote	Severe: cutbanks cave, wetness, floods.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: wetness, floods.	Severe: wetness, floods.
Tavares	Severe: cutbanks cave.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: droughty.
Pomello	Severe: cutbanks cave, wetness.	Severe: floods.	Severe: floods, wetness.	Severe: floods.	Severe: floods.	Severe: droughty.
72 Orlando	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Moderate: droughty, too sandy.
73 Zolfo	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: droughty, too sandy.
74 Candler Variant	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Moderate: droughty.
75*. Beaches						
76 Bessie	Severe: cutbanks cave, wetness.	Severe: floods, wetness, shrink-swell.	Severe: floods, wetness, shrink-swell.	Severe: floods, wetness, shrink-swell.	Severe: low strength, wetness, floods.	Severe: excess salt, wetness, floods.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
1 Wauchula	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Poor: wetness.
2 Pomona	Severe: wetness, percs slowly.	Severe: seepage, wetness.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
3 Pineda	Severe: wetness, percs slowly, poor filter.	Severe: seepage, floods, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
4 Felda	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
5 Myakka	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
6 Tavares	Moderate: wetness.	Severe: seepage.	Severe: wetness, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
7 Sparr	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy.
8 Sellers	Severe: ponding, poor filter.	Severe: seepage, ponding.	Severe: seepage, ponding.	Severe: seepage, ponding.	Poor: seepage, too sandy, ponding.
9 Ona	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
10 Vero	Severe: wetness, percs slowly.	Severe: seepage, wetness.	Severe: wetness.	Severe: seepage, wetness.	Poor: wetness.
11 Adamsville	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy.
12 Astatula	Slight	Severe: seepage.	Severe: too sandy.	Severe: seepage.	Poor: seepage, too sandy.
13, 14 Candler	Slight	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
15*:					
Tavares	Moderate: wetness.	Severe: seepage.	Severe: wetness, too sandy.	Severe: seepage.	Poor: seepage, too sandy.

See footnote at end of table.

TABLE 12.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
15*: Urban land.					
16------------------ Zephyr	Severe: ponding, percs slowly.	Severe: seepage, excess humus, ponding.	Severe: seepage, ponding.	Severe: seepage, ponding.	Poor: ponding.
17------------------ Immokalee	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
18------------------ Electra Variant	Severe: wetness.	Severe: seepage, wetness.	Severe: depth to rock, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy.
19------------------ Paola	Slight-----------	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
20------------------ Aripeka	Severe: floods, depth to rock, wetness.	Severe: seepage, depth to rock, floods.	Severe: floods, depth to rock, seepage.	Severe: floods, depth to rock, seepage.	Poor: area reclaim, large stones.
21------------------ Smyrna	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
22------------------ Basinger	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
23------------------ Basinger	Severe: ponding, poor filter.	Severe: seepage, ponding.	Severe: seepage, ponding, too sandy.	Severe: seepage, ponding.	Poor: seepage, too sandy. ponding.
24*. Quartzipsamments					
25------------------ Jonesville	Severe: depth to rock.	Severe: seepage, depth to rock.	Severe: depth to rock, seepage, too sandy.	Severe: depth to rock, seepage.	Poor: area reclaim, seepage, too sandy.
26------------------ Narcoossee	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy.
27------------------ Anclote	Severe: wetness.	Severe: wetness, seepage.	Severe: wetness, seepage.	Severe: wetness, seepage.	Poor: wetness, seepage, too sandy.
28*. Pits					
29*----------------- Lacoochee	Severe: floods, depth to rock, wetness.	Severe: seepage, depth to rock, floods.	Severe: floods, depth to rock, seepage.	Severe: floods, depth to rock, seepage.	Poor: area reclaim, too sandy, wetness.

See footnote at end of table.

TABLE 12.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
30*:					
Okeelanta	Severe: ponding, poor filter.	Severe: seepage, excess humus, ponding.	Severe: seepage, ponding, too sandy.	Severe: seepage, ponding.	Poor: seepage, too sandy, ponding.
Terra Ceia	Severe: ponding, poor filter.	Severe: seepage, excess humus.	Severe: ponding, excess humus.	Severe: seepage, ponding.	Poor: ponding, excess humus.
31*:					
Udalfic Arents.					
Urban land.					
32 Lake	Slight	Severe: seepage.	Severe: too sandy.	Severe: seepage.	Poor: seepage, too sandy.
34 Pompano	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
35 EauGallie	Severe: wetness.	Severe: wetness, seepage.	Severe: wetness, seepage, too sandy.	Severe: wetness, seepage.	Poor: too sandy, wetness, seepage.
36*:					
Candler	Slight	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
Urban land.					
37*:					
Paola	Slight	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
Urban land.					
38*. Urban land					
39* Chobee	Severe: floods, wetness, percs slowly.	Severe: floods, wetness.	Severe: floods, seepage, wetness.	Severe: floods, wetness.	Poor: wetness.
40 Paisley	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
41*:					
Pits.					
Dumps.					
42 Pomello	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, too sandy, wetness.	Severe: seepage, wetness.	Poor: too sandy, seepage.

See footnote at end of table.

TABLE 12.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
43, 44 Arredondo	Slight	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: too sandy.
45 Kendrick	Slight	Severe: seepage.	Slight	Severe: seepage.	Good.
46 Cassia	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy.
47 Weekiwachee	Severe: floods, wetness.	Severe: seepage, floods, excess humus.	Severe: floods, depth to rock, seepage.	Severe: floods, seepage, wetness.	Poor: wetness, excess humus, excess salt.
48 Lochloosa	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: seepage, wetness.	Fair: wetness.
49, 50, 51 Blichton	Severe: wetness, percs slowly.	Severe: seepage, wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Poor: seepage, wetness.
52 Samsula	Severe: ponding, poor filter.	Severe: seepage, excess humus, ponding.	Severe: seepage, ponding, excess humus.	Severe: seepage, ponding.	Poor: ponding, excess humus.
53 Sparr	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy.
54 Flemington Variant	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
55 Homosassa	Severe: floods, depth to rock, wetness.	Severe: seepage, depth to rock, floods.	Severe: floods, depth to rock, seepage.	Severe: floods, depth to rock, seepage.	Poor: area reclaim, seepage, too sandy.
56*:					
EauGallie	Severe: wetness.	Severe: wetness, seepage.	Severe: wetness, seepage, too sandy.	Severe: wetness, seepage.	Poor: too sandy, wetness, seepage.
Urban land.					
57 Vero Variant	Severe: wetness.	Severe: seepage, wetness.	Severe: depth to rock, seepage, wetness.	Severe: seepage, wetness.	Poor: wetness.
58 Tomoka	Severe: ponding, poor filter.	Severe: seepage, excess humus, ponding.	Severe: seepage, ponding.	Severe: seepage, ponding.	Poor: ponding.
59 Newnan	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy.

See footnote at end of table.

TABLE 12.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
60*:					
Palmetto	Severe: ponding.	Severe: seepage, ponding.	Severe: seepage, ponding, too sandy.	Severe: seepage, ponding.	Poor: seepage, too sandy, wetness.
Zephyr	Severe: ponding, percs slowly.	Severe: seepage, excess humus, ponding.	Severe: seepage, ponding.	Severe: seepage, ponding.	Poor: ponding.
Sellers	Severe: ponding, poor filter.	Severe: seepage, ponding.	Severe: seepage, ponding.	Severe: seepage, ponding.	Poor: seepage, too sandy, ponding.
61 Pompano	Severe: floods, wetness, poor filter.	Severe: seepage, floods, wetness.	Severe: floods, seepage, wetness.	Severe: floods, seepage, wetness.	Poor: seepage, too sandy, wetness.
62 Kendrick	Slight	Severe: seepage.	Slight	Severe: seepage.	Good.
63 Delray	Severe: ponding.	Severe: seepage, ponding.	Severe: seepage, ponding.	Severe: seepage, ponding.	Poor: seepage, too sandy, ponding.
64 Nobleton	Severe: wetness, percs slowly.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage.	Poor: too sandy.
65 Gainesville	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: too sandy.
66 Micanopy	Severe: wetness, percs slowly.	Severe: seepage, wetness.	Severe: wetness, too clayey.	Severe: seepage.	Poor: too clayey, hard to pack.
67 Kanapaha	Severe: wetness, percs slowly.	Severe: seepage, wetness.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
68 Lake	Slight	Severe: seepage.	Severe: too sandy.	Severe: seepage.	Poor: seepage, too sandy.
69 Millhopper	Moderate: wetness.	Severe: seepage.	Severe: wetness, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
70 Placid	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, ponding, too sandy.	Severe: seepage, wetness.	Poor: wetness, too sandy, seepage.
71*:					
Anclote	Severe: floods, wetness, poor filter.	Severe: seepage, floods, wetness.	Severe: floods, seepage, wetness.	Severe: floods, seepage, wetness.	Poor: seepage, too sandy, wetness.

See footnote at end of table.

TABLE 12.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
71*:					
Tavares	Severe: floods, wetness, poor filter.	Severe: seepage, floods.	Severe: floods, seepage, wetness.	Severe: floods, seepage.	Poor: seepage, too sandy.
Pomello	Severe: floods, wetness, poor filter.	Severe: seepage, floods, wetness.	Severe: floods, seepage, wetness.	Severe: floods, seepage, wetness.	Poor: seepage, too sandy.
72 Orlando	Slight	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Severe: seepage, too sandy.
73 Zolfo	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy.
74 Candler Variant	Slight	Severe: seepage, too sandy.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
75*. Beaches					
76 Bessie	Severe: floods, wetness, percs slowly.	Severe: seepage, floods, excess humus.	Severe: floods, seepage, wetness.	Severe: floods, seepage, wetness.	Poor: too clayey, hard to pack, wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," "poor," "probable," and "improbable." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
1 Wauchula	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, wetness.
2 Pomona	Poor: wetness.	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy, wetness.
3 Pineda	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
4 Felda	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
5 Myakka	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
6 Tavares	Good	Probable	Improbable: too sandy.	Poor: too sandy.
7 Sparr	Fair: wetness.	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy.
8 Sellers	Poor: wetness.	Probable	Improbable: too sandy.	Poor: wetness.
9 Ona	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
10 Vero	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, wetness.
11 Adamsville	Fair: wetness.	Probable	Improbable: too sandy.	Poor: too sandy.
12 Astatula	Good	Probable	Improbable: too sandy.	Poor: too sandy.
13, 14 Candler	Good	Probable	Improbable: too sandy.	Poor: too sandy.
15*:				
Tavares	Good	Probable	Improbable: too sandy.	Poor: too sandy.
Urban land.				
16 Zephyr	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess humus, wetness.
17 Immokalee	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
18 Electra Variant	Fair: wetness.	Probable	Improbable: too sandy.	Poor: too sandy.

See footnote at end of table.

TABLE 13.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
19 Paola	Good	Probable	Improbable: too sandy.	Poor: too sandy.
20 Aripeka	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, large stones.
21 Smyrna	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
22, 23 Basinger	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
24*. Quartzipsamments				
25 Jonesville	Poor: area reclaim.	Improbable: thin layer	Improbable: too sandy.	Poor: too sandy.
26 Narcoossee	Fair: wetness.	Probable	Improbable: too sandy.	Poor: too sandy.
27 Anclote	Poor: wetness, area reclaim.	Probable	Improbable: too sandy.	Poor: wetness.
28*. Pits				
29* Lacoochee	Poor: area reclaim, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, wetness.
30*:				
Okeelanta	Poor: wetness.	Probable	Improbable: too sandy.	Poor: excess humus, wetness.
Terra Ceia	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess humus, wetness
31*:				
Udalfic Arents.				
Urban land.				
32 Lake	Good	Probable	Improbable: too sandy.	Poor: too sandy.
34 Pompano	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
35 EauGallie	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
36*:				
Candler	Good	Probable	Improbable: too sandy.	Poor: too sandy.
Urban land.				

See footnote at end of table.

TABLE 13.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
37*:				
Paola	Good	Probable	Improbable: too sandy.	Poor: too sandy.
Urban land.				
38*. Urban land				
39* Chobee	Poor: wetness.	Improbable: excess fines.	Improbable: too sandy.	Poor: wetness.
40 Paisley	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines	Poor: too sandy, wetness.
41*:				
Pits.				
Dumps.				
42 Pomello	Fair: wetness.	Probable	Improbable: too sandy.	Poor: too sandy.
43, 44 Arredondo	Good	Probable	Improbable: too sandy.	Poor: too sandy.
45 Kendrick	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
46 Cassia	Fair: wetness.	Probable	Improbable: too sandy.	Poor: too sandy.
47 Weekiwachee	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess humus, excess salt, wetness.
48 Lochloosa	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
49, 50, 51 Blichton	Poor: wetness.	Improbable: thin layer.	Improbable: too sandy.	Poor: wetness.
52 Samsula	Poor: wetness.	Probable	Improbable: too sandy.	Poor: excess humus, wetness.
53 Sparr	Fair: wetness.	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy.
54 Flemington Variant	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
55 Homosassa	Poor: area reclaim, wetness.	Improbable: thin layer.	Improbable: too sandy.	Poor: excess salt, wetness.
56*:				
EauGallie	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
Urban land.				

See footnote at end of table.

TABLE 13.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
57 Vero Variant	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, wetness.
58 Tomoka	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess humus wetness.
59 Newnan	Fair: wetness.	Probable	Improbable: too sandy.	Poor: too sandy.
60*:				
Palmetto	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
Zephyr	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess humus, wetness.
Sellers	Poor: wetness.	Probable	Improbable: too sandy.	Poor: wetness.
61 Pompano	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
62 Kendrick	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
63 Delray	Poor: wetness.	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy, wetness.
64 Nobleton	Fair: wetness.	Improbable: thin layer.	Poor: too sandy.	Poor: too sandy.
65 Gainesville	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
66 Micanopy	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
67 Kanapaha	Poor: wetness.	Improbable: thin layer	Improbable: too sandy.	Poor: too sandy, wetness.
68 Lake	Good	Probable	Improbable: too sandy.	Poor: too sandy.
69 Millhopper	Good	Probable	Improbable: too sandy.	Poor: too sandy.
70 Placid	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
71*:				
Anclote	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
Tavares	Good	Probable	Improbable: too sandy.	Poor: too sandy.
Pomello	Good	Probable	Improbable: too sandy.	Poor: too sandy.

See footnote at end of table.

TABLE 13.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
72 Orlando	Slight	Probable	Improbable: too sandy.	Poor: too sandy.
73 Zolfo	Fair: wetness.	Probable	Improbable: too sandy.	Poor: too sandy.
74 Candler Variant	Good	Probable	Improbable: too sandy.	Poor: too sandy.
75*. Beaches				
76 Bessie	Poor: wetness.	Probable	Improbable: too sandy.	Poor: excess humus, excess salt, wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated]

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Grassed waterways
1 Wauchula	Severe: seepage.	Severe: piping, wetness.	Severe: cutbanks cave.	Favorable	Wetness, droughty, fast intake.	Wetness, erodes easily, droughty.
2 Pomona	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: slow refill, cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, droughty.
3 Pineda	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: slow refill, cutbanks cave.	Percs slowly, cutbanks cave.	Wetness, droughty, fast intake.	Wetness, droughty, percs slowly.
4 Felda	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, droughty.
5 Myakka	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, droughty.
6 Tavares	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Deep to water	Droughty, fast intake, soil blowing.	Droughty.
7 Sparr	Severe: seepage, wetness.	Severe: seepage.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Droughty.
8 Sellers	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: cutbanks cave.	Ponding, cutbanks cave.	Ponding, droughty, fast intake.	Wetness, droughty.
9 Ona	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, droughty.
10 Vero	Slight	Severe: piping, wetness.	Severe: slow refill, cutbanks cave.	Percs slowly	Wetness, droughty, fast intake.	Wetness, droughty, rooting depth.
11 Adamsville	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Droughty.
12 Astatula	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake, soil blowing.	Droughty.
13, 14 Candler	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake, soil blowing.	Droughty.
15*: Tavares	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Deep to water	Droughty, fast intake, soil blowing.	Droughty.
Urban land.						

See footnote at end of table.

TABLE 14.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Grassed waterways
16---------------- Zephyr	Moderate: seepage.	Severe: ponding.	Severe: slow refill, cutbanks cave.	Ponding, percs slowly, subsides.	Ponding, soil blowing, percs slowly.	Wetness, percs slowly.
17---------------- Immokalee	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, droughty.
18---------------- Electra Variant	Severe: seepage.	Severe: seepage.	Severe: slow refill, cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Droughty.
19---------------- Paola	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake, soil blowing.	Droughty.
20---------------- Aripeka	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: depth to rock, cutbanks cave.	Depth to rock, floods, large stones.	Wetness, droughty, fast intake.	Large stones, droughty, depth to rock.
21---------------- Smyrna	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, droughty.
22---------------- Basinger	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, droughty.
23---------------- Basinger	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: cutbanks cave.	Ponding, cutbanks cave.	Ponding, droughty, fast intake.	Wetness, droughty.
24*. Quartzipsamments						
25---------------- Jonesville	Moderate: seepage, depth to rock.	Severe: seepage.	Severe: no water.	Deep to water	Droughty, fast intake, soil blowing.	Droughty, depth to rock.
26---------------- Narcoossee	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Droughty.
27---------------- Anclote	Severe: seepage.	Severe: piping, seepage.	Slight----------	Wetness, poor outlets.	Wetness--------	Not needed.
28*. Pits						
29*--------------- Lacoochee	Moderate: depth to rock.	Severe: seepage, piping, wetness.	Severe: salty water, depth to rock, cutbanks cave.	Wetness, depth to rock, floods.	Wetness, soil blowing.	Wetness, excess salt, depth to rock.
30*: Okeelanta--------	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: cutbanks cave.	Ponding, subsides, cutbanks cave.	Ponding, too sandy, soil blowing.	Wetness.
Terra Ceia-------	Severe: seepage.	Severe: excess humus, ponding.	Slight----------	Ponding, subsides.	Ponding, soil blowing.	Wetness.

See footnote at end of table.

TABLE 14.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Grassed waterways
31*:						
Udalfic Arents.						
Urban land.						
32 Lake	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Droughty, fast intake, soil blowing.	Droughty.
34 Pompano	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, droughty.
35 EauGallie	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Fast intake, wetness, droughty.	Wetness, droughty.
36*:						
Candler	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake, soil blowing.	Droughty.
Urban land.						
37*:						
Paola	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake, soil blowing.	Droughty.
Urban land.						
38*. Urban land						
39* Chobee	Slight	Severe: wetness.	Severe: slow refill, cutbanks cave.	Percs slowly, floods.	Wetness, soil blowing.	Wetness, rooting depth, percs slowly.
40 Paisley	Slight	Severe: wetness.	Severe: slow refill.	Percs slowly	Wetness, fast intake, soil blowing.	Wetness, percs slowly.
41*:						
Pits.						
Dumps.						
42 Pomello	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Droughty.
43, 44 Arredondo	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake, soil blowing.	Droughty.
45 Kendrick	Severe: seepage.	Slight	Severe: no water.	Deep to water	Droughty, fast intake, soil blowing.	Droughty, rooting depth.
46 Cassia	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Droughty.
47 Weekiwachee	Severe: seepage.	Severe: excess humus, wetness, excess salt.	Severe: salty water, cutbanks cave.	Ponding, floods, excess salt.	Wetness, soil blowing, floods.	Wetness, excess salt.

See footnote at end of table.

TABLE 14.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Grassed waterways
48 Lochloosa	Severe: seepage.	Moderate: wetness.	Severe: cutbanks cave.	Favorable	Wetness, droughty, fast intake.	Droughty.
49 Blichton	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: slow refill, cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, droughty.
50, 51 Blichton	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: slow refill, cutbanks cave.	Slope, cutbanks cave.	Wetness, droughty, fast intake.	Wetness, droughty.
52 Samsula	Severe: seepage.	Severe: excess humus, ponding.	Severe: cutbanks cave.	Ponding, subsides.	Ponding, soil blowing.	Wetness.
53 Sparr	Severe: seepage, wetness.	Severe: seepage.	Severe: cutbanks cave.	Cutbanks cave, slope.	Wetness, droughty, fast intake.	Droughty.
54 Flemington Variant	Slight	Severe: wetness.	Severe: slow refill.	Percs slowly	Wetness, soil blowing, percs slowly.	Wetness, erodes easily, percs slowly.
55 Homosassa	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: salty water, depth to rock, cutbanks cave.	Wetness, depth to rock, floods.	Wetness, soil blowing.	Wetness, excess salt, depth to rock.
56*: EauGallie	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Fast intake, wetness, droughty.	Wetness, droughty.
Urban land.						
57 Vero Variant	Severe	Severe: thin layer, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, droughty.
58 Tomoka	Severe: seepage.	Severe: piping, ponding.	Severe: cutbanks cave.	Ponding, subsides.	Ponding	Wetness.
59 Newnan	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Droughty.
60*: Palmetto	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: cutbanks cave.	Ponding, cutbanks cave.	Ponding, droughty, fast intake.	Wetness, droughty.
Zephyr	Moderate: seepage.	Severe: ponding.	Severe: slow refill, cutbanks cave.	Ponding, percs slowly, subsides.	Ponding, soil blowing, percs slowly.	Wetness, percs slowly.
Sellers	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: cutbanks cave.	Ponding, cutbanks cave.	Ponding, droughty, fast intake.	Wetness, droughty.

See footnote at end of table.

TABLE 14.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Grassed waterways
61----------------- Pompano	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Floods, cutbanks cave.	Wetness, droughty, fast intake.	Wetness, droughty.
62----------------- Kendrick	Severe: seepage.	Slight---------	Severe: no water.	Deep to water	Droughty, fast intake, soil blowing.	Droughty, rooting depth.
63----------------- Delray	Severe: seepage.	Severe: seepage, ponding.	Severe: cutbanks cave.	Ponding, cutbanks cave.	Ponding, droughty, fast intake.	Wetness, droughty.
64----------------- Nobleton	Moderate: seepage.	Severe: hard to pack.	Severe: no water.	Favorable------	Wetness, droughty, fast intake.	Droughty.
65----------------- Gainesville	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake, soil blowing.	Droughty.
66----------------- Micanopy	Moderate: slope.	Severe: hard to pack.	Severe: no water.	Percs slowly, slope.	Wetness, fast intake, soil blowing.	Percs slowly.
67----------------- Kanapaha	Severe: seepage.	Severe: seepage, wetness.	Severe: slow refill, cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, droughty.
68----------------- Lake	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Droughty, fast intake, soil blowing.	Droughty.
69----------------- Millhopper	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake, soil blowing.	Droughty.
70----------------- Placid	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, fast intake, soil blowing.	Wetness.
71*:						
Anclote-----------	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Floods, cutbanks cave.	Wetness, fast intake, soil blowing.	Wetness.
Tavares-----------	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Deep to water	Droughty, fast intake, soil blowing.	Droughty.
Pomello-----------	Severe: seepage.	Severe: seepage, too sandy.	Severe: cutbanks cave.	Floods, cutbanks cave.	Wetness, droughty, fast intake.	Droughty.
72----------------- Orlando	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Droughty, fast intake, soil blowing.	Droughty.
73----------------- Zolfo	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Droughty.
74----------------- Candler Variant	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Droughty, fast intake, soil blowing.	Droughty.
75*. Beaches						

See footnote at end of table.

TABLE 14.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Grassed waterways
76---------------- Bessie	Moderate: seepage.	Severe: hard to pack, wetness, excess salt.	Severe: slow refill, salty water, cutbanks cave.	Percs slowly, floods.	Wetness, percs slowly, floods.	Wetness, excess salt, erodes easily.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--ENGINEERING INDEX PROPERTIES

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated]

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
1----------------- Wauchula	0-8	Fine sand--------	SP-SM	A-3, A-2-4	0	100	100	90-100	5-12	---	NP
	8-19	Sand, fine sand	SP-SM, SM	A-3, A-2-4	0	100	100	90-100	5-13	---	NP
	19-26	Sand, fine sand, loamy fine sand.	SP-SM, SM	A-3, A-2-4	0	100	100	90-100	8-27	---	NP
	26-34	Sand, fine sand	SP-SM, SM	A-3, A-2-4	0	100	100	90-100	5-20	---	NP
	34-80	Sandy loam, fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-2-6, A-4, A-6	0	100	92-100	90-100	25-50	<40	NP-20
2----------------- Pomona	0-6	Fine sand--------	SP, SP-SM	A-3, A-2-4	0	100	100	85-100	2-12	---	NP
	6-22	Sand, fine sand	SP, SP-SM, SM	A-3, A-2-4	0	100	100	85-100	2-19	---	NP
	22-36	Sand, fine sand	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	5-17	---	NP
	36-52	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	85-100	2-12	---	NP
	52-60	Sandy clay loam, sandy loam, sandy clay.	SC, SM-SC, SM	A-2-4, A-4, A-6	0	100	95-100	85-100	25-50	<40	NP-16
3----------------- Pineda	0-39	Fine sand--------	SP, SP-SM	A-3	0	100	100	80-95	2-5	---	NP
	39-80	Sandy loam, fine sandy loam, sandy clay loam.	SC, SM-SC	A-2-4, A-2-6	0	100	100	80-95	15-35	20-30	4-12
4----------------- Felda	0-23	Fine sand--------	SP, SP-SM	A-3	0	100	100	90-99	2-5	---	NP
	23-35	Sandy loam, fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-2-6	0	100	100	90-99	15-35	<40	NP-15
	35-80	Sand, fine sand, loamy sand.	SP, SP-SM	A-3, A-2-4	0	100	100	80-99	2-12	---	NP
5----------------- Myakka	0-27	Fine sand--------	SP, SP-SM	A-3	0	100	100	85-100	2-10	---	NP
	27-38	Sand, fine sand, loamy fine sand.	SM, SP-SM	A-3, A-2-4	0	100	100	85-100	5-20	---	NP
	38-80	Sand, fine sand	SP, SP-SM	A-3	0	100	100	85-100	2-8	---	NP
6----------------- Tavares	0-86	Sand-------------	SP, SP-SM	A-3	0	100	95-100	85-100	2-9	---	NP
7----------------- Sparr	0-6	Fine sand--------	SP-SM	A-3, A-2-4	0	100	100	75-95	5-12	---	NP
	6-43	Sand, fine sand	SP-SM	A-3, A-2-4	0	100	100	75-98	5-12	---	NP
	43-48	Sandy loam, sandy clay loam, fine sandy loam.	SM-SC, SC, SM	A-2	0	100	100	75-99	25-35	<30	NP-12
	48-59	Sandy clay, sandy clay loam, sandy loam.	SC, SM-SC	A-2, A-4, A-6	0	100	95-100	75-99	30-50	22-40	5-15
	59-80	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM-SC, SM	A-2, A-4, A-6	0	100	95-100	75-99	25-40	<35	NP-12
8----------------- Sellers	0-9	Mucky loamy fine sand.	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	5-20	---	NP
	9-24	Sand, fine sand, loamy fine sand.	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	5-20	---	NP
	24-80	Sand, fine sand, loamy fine sand.	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	5-20	---	NP
9----------------- Ona	0-7	Fine sand--------	SP-SM, SP	A-3	0	100	100	85-95	3-10	---	NP
	7-18	Fine sand, sand	SP-SM, SM	A-3, A-2-4	0	100	100	85-95	5-20	---	NP
	18-80	Fine sand, sand	SP-SM, SP	A-3	0	100	100	85-95	3-10	---	NP

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
10--------------- Vero	0-23	Fine sand--------	SP-SM, SM	A-3, A-2-4	0	100	100	70-100	5-25	---	NP
	23-30	Sand, fine sand, loamy fine sand.	SM	A-2-4	0	100	100	60-100	30-50	<40	NP-25
	30-80	Sandy loam, fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-2-6, A-6, A-4	0	100	100	60-100	30-50	<40	NP-25
11--------------- Adamsville	0-8	Fine sand--------	SP-SM	A-3, A-2-4	0	100	100	90-100	5-12	---	NP
	8-80	Fine sand, sand	SP-SM, SP	A-3, A-2-4	0	100	100	90-100	2-12	---	NP
12--------------- Astatula	0-80	Fine sand--------	SP, SP-SM	A-3	0	100	100	75-99	1-7	---	NP
13--------------- Candler	0-50	Fine sand--------	SP, SP-SM	A-3	0	100	95-100	75-100	2-8	---	NP
	50-82	Sand, fine sand	SP-SM, SP	A-3, A-2-4	0	100	95-100	75-100	4-12	---	NP
14--------------- Candler	0-65	Fine sand--------	SP, SP-SM	A-3	0	100	95-100	75-100	2-8	---	NP
	65-80	Sand, fine sand	SP-SM, SP	A-3, A-2-4	0	100	95-100	75-100	4-12	---	NP
15*:											
Tavares----------	0-86	Sand-------------	SP, SP-SM	A-3	0	100	95-100	85-100	2-9	---	NP
Urban land.											
16--------------- Zephyr	13-0	Muck-------------	Pt	A-8	0	---	---	---	---	---	---
	0-18	Sand, fine sand	SP-SM, SM	A-3, A-2-4	0	100	100	85-95	5-15	---	NP
	18-48	Sandy loam, fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-2-6	0	100	100	90-100	15-35	<40	NP-15
	48-67	Fine sand, loamy fine sand, fine sandy loam.	SM, SM-SC, SC	A-2-4, A-4	0	100	100	90-100	12-36	<30	NP-8
17--------------- Immokalee	0-4	Fine sand--------	SP, SP-SM	A-3	0	100	100	70-100	2-10	---	NP
	4-33	Fine sand, sand	SP, SP-SM	A-3	0	100	100	70-100	2-10	---	NP
	33-45	Fine sand, sand	SP-SM, SM	A-3, A-2-4	0	100	100	70-100	5-21	---	NP
	45-80	Fine sand, sand	SP, SP-SM	A-3	0	100	100	70-100	2-10	---	NP
18--------------- Electra Variant	0-5	Fine sand--------	SP, SP-SM	A-3	0	100	95-100	75-99	3-10	---	NP
	5-39	Sand, fine sand	SP, SP-SM	A-3	0	100	95-100	75-99	3-10	---	NP
	39-51	Sand, fine sand	SP-SM, SM	A-3, A-2-4	0	100	100	80-99	8-15	---	NP
	51-70	Sand, fine sand	SP, SP-SM	A-3	0	100	100	80-99	3-10	---	NP
	70-78	Sandy loam, fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-2-6	0	100	100	80-99	20-35	<40	NP-20
	78	Weathered bedrock	---	---	---	---	---	---	---	---	---
19--------------- Paola	0-26	Fine sand--------	SP	A-3	0	100	100	85-100	1-2	---	NP
	26-80	Sand, fine sand	SP	A-3	0	100	100	80-100	1-4	---	NP
20--------------- Aripeka	0-17	Fine sand--------	SP-SM, SM	A-3, A-2-4	0	100	100	85-95	5-20	---	NP
	17-26	Fine sandy loam, sandy clay loam.	SP-SM, SM, SM-SC, SC	A-2-4, A-2-6	<50	85-95	80-90	70-80	12-35	<40	NP-15
	26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
21--------------- Smyrna	0-13	Fine sand--------	SP, SP-SM	A-3	0	100	100	80-100	2-10	---	NP
	13-25	Sand, fine sand	SM, SP-SM	A-3, A-2-4	0	100	100	80-100	5-20	---	NP
	25-80	Sand, fine sand	SP, SP-SM	A-3	0	100	100	80-100	2-10	---	NP

See footnote at end of table.

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
22 Basinger	0-10	Fine sand	SP	A-3	0	100	100	85-100	1-4	---	NP
	10-19	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	85-100	2-12	---	NP
	19-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	85-100	2-12	---	NP
23 Basinger	0-10	Fine sand	SP	A-3	0	100	100	85-100	1-4	---	NP
	10-30	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	85-100	2-12	---	NP
	30-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	85-100	2-12	---	NP
24*. Quartzipsamments											
25 Jonesville	0-4	Fine sand	SP-SM, SM	A-2-4	0	100	100	80-95	5-15	---	NP
	4-22	Sand, fine sand	SP-SM, SM	A-2-4	0	100	100	80-95	5-15	---	NP
	22-28	Sandy loam, fine sandy loam, sandy clay loam.	SM-SC, SC	A-2-4, A-2-6	0-10	90-100	85-100	80-95	20-35	<40	NP-15
	28	Weathered bedrock	---	---	---	---	---	---	---	---	---
26 Narcoossee	0-3	Fine sand	SP-SM,	A-3	0	100	100	95-100	5-10	---	NP
	3-9	Sand, fine sand	SP, SP-SM	A-3	0	100	100	95-100	2-8	---	NP
	9-12	Sand, fine sand	SP-SM, SM	A-3, A-2-4	0	100	100	95-100	5-15	---	NP
	12-75	Sand, fine sand	SP, SP-SM, SM	A-3	0	100	100	95-100	2-15	---	NP
27 Anclote	0-14	Fine sand	SP, SP-SM	A-3, A-2-4	0	100	95-100	85-100	2-12	---	NP
	14-80	Sand, fine sand, loamy fine sand.	SP, SP-SM, SM	A-3, A-2-4	0	100	95-100	85-100	2-20	---	NP
28*. Pits											
29* Lacoochee	0-8	Fine sandy loam	SM, SM-SC	A-4	0	100	100	85-95	36-40	<28	NP-7
	8-18	Fine sand, loamy fine sand.	SM	A-2-4	0	100	100	85-95	13-25	---	NP
	18-36	Weathered bedrock	---	---	---	---	---	---	---	---	---
	36	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
30*: Okeelanta	0-27	Muck	Pt	A-8	0	---	---	---	---	---	---
	27-65	Fine sand, sand, loamy sand.	SP, SP-SM, SM	A-3, A-2-4	0	100	85-100	80-95	2-15	---	NP
Terra Ceia	0-80	Muck	Pt	A-8	---	---	---	---	---	---	---
31*: Udalfic Arents.											
Urban land.											
32 Lake	0-80	Fine sand	SP-SM	A-3, A-2-4	0	100	100	85-100	5-12	---	NP
34 Pompano	0-80	Fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	75-100	1-12	---	NP
35 EauGallie	0-22	Fine sand	SP, SP-SM	A-3	0	100	100	80-98	2-5	---	NP
	22-30	Sand, fine sand	SP-SM, SM	A-3, A-2-4	0	100	100	80-98	5-20	---	NP
	30-51	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	80-98	2-12	---	NP
	51-80	Sandy loam, fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-2-6	0	100	100	80-98	20-40	<40	NP-20

See footnote at end of table.

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
36*:											
Candler----------	0-60	Fine sand--------	SP, SP-SM	A-3	0	100	95-100	75-100	2-8	---	NP
	60-80	Sand, fine sand	SP-SM, SP	A-3, A-2-4	0	100	95-100	75-100	4-12	---	NP
Urban land.											
37*:											
Paola-----------	0-26	Fine sand--------	SP	A-3	0	100	100	85-100	1-2	---	NP
	26-80	Sand, fine sand	SP	A-3	0	100	100	80-100	1-4	---	NP
Urban land.											
38*. Urban land											
39*-------------- Chobee	0-11	Fine sandy loam	SP-SM, SM	A-2-4	0	100	100	85-99	12-25	<40	NP-10
	11-56	Sandy clay loam	SC	A-2-6, A-2-7, A-6, A-7	0	100	100	85-99	25-45	35-45	20-25
	56-80	Loamy sand, fine sand, sandy clay loam.	SP-SM, SM, SC, SM-SC	A-2-4, A-2-6, A-6, A-7	0	100	100	80-99	12-45	<45	NP-25
40--------------- Paisley	0-10	Fine sand--------	SP-SM	A-3, A-2-4	0	100	100	80-99	5-12	---	NP
	10-80	Sandy clay, clay	CH, CL	A-7	0	95-100	90-100	75-95	51-70	41-51	25-35
41*:											
Pits.											
Dumps.											
42--------------- Pomello	0-32	Fine sand--------	SP, SP-SM	A-3	0	100	100	60-100	1-8	---	NP
	32-41	Coarse sand, sand, fine sand.	SP-SM, SM	A-3, A-2-4	0	100	100	60-100	6-15	---	NP
	41-80	Coarse sand, sand, fine sand.	SP, SP-SM	A-3	0	100	100	60-100	4-10	---	NP
43--------------- Arredondo	0-63	Fine sand--------	SP-SM, SM	A-2-4, A-3	0	95-100	90-100	75-99	5-15	---	NP
	63-87	Sandy loam, fine sandy loam, sandy clay loam.	SC, SM-SC	A-2-4, A-2-6, A-4, A-6	0	95-100	90-100	85-99	20-40	<40	4-20
44--------------- Arredondo	0-52	Fine sand--------	SP-SM, SM	A-2-4, A-3	0	95-100	90-100	75-99	5-15	---	NP
	52-55	Loamy sand, loamy fine sand, sandy loam.	SM, SM-SC	A-2-4	0	95-100	90-100	75-99	13-25	<25	NP-7
	55-80	Sandy loam, fine sandy loam, sandy clay loam.	SC, SM-SC	A-2-4, A-2-6, A-4, A-6	0	95-100	90-100	85-99	20-40	<40	4-20
45--------------- Kendrick	0-28	Fine sand--------	SP-SM	A-3, A-2-4	0	95-100	90-100	75-99	5-12	---	NP
	28-80	Sandy clay loam, fine sandy loam, sandy loam.	SC, SM-SC	A-2-6, A-2-4	0	95-100	90-100	85-99	25-39	20-35	4-18
46--------------- Cassia	0-18	Fine sand--------	SP, SP-SM	A-3	0	100	100	90-100	2-7	---	NP
	18-31	Sand, fine sand, loamy sand.	SP-SM, SM	A-3, A-2-4	0	100	100	90-100	5-20	---	NP
	31-65	Sand, fine sand	SP, SP-SM	A-3	0	100	100	90-100	2-10	---	NP
47--------------- Weekiwachee	0-31	Muck-------------	Pt	A-8	---	---	---	---	---	---	---
	31-39	Sand, fine sand	SP-SM	A-2-4, A-3	0	100	100	85-95	5-12	---	NP
	39-44	Weathered bedrock	---	---	---	---	---	---	---	---	---
	44	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
48--------------- Lochloosa	0-36	Fine sand	SP-SM, SM	A-2-4, A-3	0	95-100	95-100	90-98	8-20	---	NP
	36-42	Fine sandy loam, sandy loam, loamy sand.	SM, SM-SC	A-2-4	0	95-100	95-100	90-98	18-30	<28	NP-6
	42-63	Sandy clay loam, sandy loam.	SC, SM-SC	A-2, A-4, A-6	0	95-100	95-100	90-98	25-40	25-40	5-18
	63-72	Sandy clay, sandy clay loam.	SC	A-6, A-7	0	95-100	95-100	90-98	40-50	35-45	15-25
	72-80	Sandy clay loam, sandy loam.	SC, SM-SC	A-2, A-4, A-6	0	95-100	95-100	90-98	25-40	25-40	5-18
49--------------- Blichton	0-22	Fine sand	SP-SM, SM	A-2-4, A-3	0	95-100	95-100	85-98	8-25	---	NP
	22-28	Sandy loam, fine sandy loam.	SM, SM-SC	A-2-4	0	95-100	95-100	85-98	20-30	<25	NP-7
	28-63	Sandy clay loam	SC	A-6	0	95-100	95-100	85-98	36-45	30-40	15-24
	63-80	Stratified sandy loam to sandy clay loam.	SM-SC, SM	A-2-4	0	95-100	90-100	80-95	20-30	<25	NP-7
50--------------- Blichton	0-38	Fine sand	SP-SM, SM	A-2-4, A-3	0	95-100	95-100	85-98	8-25	---	NP
	38-44	Sandy loam, fine sandy loam.	SM, SM-SC	A-2-4	0	95-100	95-100	85-98	20-30	<25	NP-7
	44-50	Sandy clay loam	SC	A-6	0	95-100	95-100	85-98	36-45	30-40	15-24
	50-62	Sandy clay loam, sandy clay.	SC	A-2, A-6, A-7	0	95-100	90-100	85-98	30-50	25-45	11-24
	62-80	Stratified sandy loam to sandy clay loam.	SM-SC, SM	A-2-4	0	95-100	90-100	80-95	20-30	<25	NP-7
51--------------- Blichton	0-27	Fine sand	SP-SM, SM	A-2-4, A-3	0	95-100	95-100	85-98	8-25	---	NP
	27-39	Sandy loam, fine sandy loam.	SM, SM-SC	A-2-4	0	95-100	95-100	85-98	20-30	<25	NP-7
	39-55	Sandy clay loam	SC	A-6	0	95-100	95-100	85-98	36-45	30-40	15-24
	55-80	Sandy clay loam, sandy clay.	SC	A-2, A-6, A-7	0	95-100	90-100	85-98	30-50	25-45	11-24
52--------------- Samsula	0-32	Muck	Pt	A-8	---	---	---	---	---	---	---
	32-80	Sand, fine sand, loamy sand.	SP-SM, SM, SP	A-3, A-2-4	0	100	100	80-100	2-20	---	NP
53--------------- Sparr	0-6	Fine sand	SP-SM	A-3, A-2-4	0	100	100	75-95	5-12	---	NP
	6-57	Sand, fine sand	SP-SM	A-3, A-2-4	0	100	100	75-98	5-12	---	NP
	57-61	Sandy loam, sandy clay loam, fine sandy loam.	SM-SC, SC, SM	A-2	0	100	100	75-99	25-35	<30	NP-12
	61-69	Sandy clay, sandy clay loam, sandy loam.	SC, SM-SC	A-2, A-4, A-6	0	100	95-100	75-99	30-50	22-40	5-15
	69-80	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM-SC, SM	A-2, A-4, A-6	0	100	95-100	75-99	25-40	<35	NP-12
54--------------- Flemington Variant	0-5	Fine sand	SP-SM, SM	A-3, A-2-4	0	100	100	90-100	5-15	---	NP
	5-80	Sandy clay, clay	SC, CL, CH	A-7	0	100	100	85-100	45-75	41-65	20-40

See footnote at end of table.

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
55--------------- Homosassa	0-11	Mucky fine sandy loam.	SM, SM-SC	A-2-4	0	100	100	85-95	13-35	<28	NP-7
	11-16	Fine sand, loamy fine sand.	SP-SM, SM	A-3, A-2-4	0	100	100	85-95	5-25	---	NP
	16-28	Fine sand, loamy fine sand.	SP-SM, SM	A-3, A-2-4	0	85-95	85-95	75-85	5-25	---	NP
	28-37	Weathered bedrock	---	---	---	---	---	---	---	---	---
	37	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
56*: EauGallie--------	0-17	Fine sand--------	SP, SP-SM	A-3	0	100	100	80-98	2-5	---	NP
	17-21	Sand, fine sand	SP-SM, SM	A-3, A-2-4	0	100	100	80-98	5-20	---	NP
	21-48	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	80-98	2-12	---	NP
	48-55	Sandy loam, fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-2-6	0	100	100	80-98	20-40	<40	NP-20
	55-80	Sand, loamy sand, loamy fine sand.	SP-SM, SM	A-3, A-2-4	0	100	100	80-98	5-25	---	NP
Urban land.											
57--------------- Vero Variant	0-16	Fine sand--------	SP-SM, SM	A-3, A-2-4	0	100	100	70-100	5-25	---	NP
	16-26	Sand, fine sand, loamy fine sand.	SM	A-2-4	0	100	100	70-100	13-25	---	NP
	26-29	Sand, fine sand	SP-SM, SM	A-3, A-2-4	0	100	100	70-100	5-25	---	NP
	29-39	Fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-2-6, A-6, A-4	0	100	100	60-100	30-50	<40	NP-25
	39-45	Weathered bedrock	---	---	---	---	---	---	---	---	---
	45	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
58--------------- Tomoka	0-22	Muck-------------	Pt	A-8	0	---	---	---	---	---	NP
	22-27	Sand, fine sand, loamy sand.	SP-SM, SM	A-3, A-2-4	0	100	100	80-95	5-15	---	NP
	27-55	Sandy clay loam, sandy loam, fine sandy loam.	SM, SM-SC, SC	A-2, A-4, A-6	0	100	100	80-95	25-40	<35	NP-15
59--------------- Newnan	0-22	Fine sand--------	SP, SP-SM	A-3, A-2-4	0	100	98-100	80-98	3-12	---	NP
	22-33	Sand, fine sand	SP-SM, SM	A-3, A-2-4	0	100	98-100	80-98	6-16	---	NP
	33-44	Sand, fine sand	SP, SP-SM, SM	A-3, A-2-4	0	100	98-100	80-98	3-16	---	NP
	44-80	Sandy loam, fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-4, A-6	0	100	99-100	85-99	18-40	<35	NP-20
60*: Palmetto--------	0-10	Fine sand--------	SP, SP-SM	A-3, A-2-4	0	100	100	70-95	2-12	---	NP
	10-46	Sand, fine sand	SP-SM	A-3, A-2-4	0	100	100	70-95	5-12	---	NP
	46-80	Sandy loam, fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-2-6	0	100	100	70-95	15-35	<37	NP-20
Zephyr----------	13-0	Muck-------------	Pt	A-8	0	---	---	---	---	---	---
	0-18	Sand, fine sand	SP-SM, SM	A-3, A-2-4	0	100	100	85-95	5-15	---	NP
	18-48	Sandy loam, fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-2-6	0	100	100	90-100	15-35	<40	NP-15
	48-67	Fine sand, loamy fine sand, fine sandy loam.	SM, SM-SC	A-2-4, A-4	0	100	100	90-100	12-36	<30	NP-8

See footnote at end of table.

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
60*:											
Sellers	0-5	Mucky loamy fine sand.	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	5-20	---	NP
	5-28	Sand, fine sand, loamy fine sand.	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	5-20	---	NP
	28-80	Sand, fine sand, loamy fine sand.	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	5-20	---	NP
61 Pompano	0-6	Fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	75-100	1-12	---	NP
	6-80	Fine sand, sand	SP, SP-SM	A-3, A-2-4	0	100	100	75-100	1-12	---	NP
62 Kendrick	0-27	Fine sand	SP-SM	A-3, A-2-4	0	95-100	90-100	75-99	5-12	---	NP
	27-35	Sandy clay loam, fine sandy loam, sandy loam.	SC, SM-SC	A-2-6, A-2-4	0	95-100	90-100	85-99	25-39	20-35	4-18
	35-70	Sandy clay loam, sandy clay.	SC	A-2-6, A-6	0	95-100	90-100	85-99	25-45	25-40	11-20
	70-80	Sandy clay loam, sandy loam.	SC, SM-SC	A-2-6, A-2-4	0	95-100	90-100	85-99	25-39	20-35	4-18
63 Delray	0-16	Mucky fine sand	SP-SM, SM, SM-SC	A-3, A-2-4	0	100	100	95-100	5-20	<20	NP-5
	16-48	Fine sand, sand	SP-SM	A-3, A-2-4	0	100	100	95-100	5-12	---	NP
	48-80	Sandy loam, fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-2-6	0	100	100	95-100	20-35	<40	NP-15
64 Nobleton	0-29	Fine sand	SP-SM, SM	A-2-4, A-3	0	95-100	95-100	90-98	8-21	---	NP
	29-36	Sandy clay loam, sandy clay.	SC	A-2-6, A-6	0	95-100	95-100	90-99	25-45	25-40	11-20
	36-47	Sandy clay	SC, CL, CH	A-6, A-7	0	95-100	95-100	90-99	40-55	30-55	16-35
	47-80	Sandy clay loam, sandy clay.	SC	A-2-6, A-6	0	95-100	95-100	90-99	25-45	25-48	11-20
65 Gainesville	0-80	Loamy fine sand	SM	A-2-4	0	97-100	95-100	85-100	13-28	---	NP
66 Micanopy	0-9	Fine sand	SM, SP-SM	A-2-4	0	95-100	95-100	90-100	11-25	---	NP
	9-15	Sandy clay, sandy clay loam.	SC	A-2, A-6, A-7	0	95-100	95-100	90-100	30-50	25-45	12-25
	15-44	Sandy clay, clay	CH, CL	A-7	0	95-100	95-100	90-100	51-70	41-75	21-45
	44-89	Sandy clay, sandy clay loam.	CH, SC, CL	A-7	0	95-100	95-100	90-100	37-55	35-70	18-42
67 Kanapaha	0-72	Fine sand	SP-SM	A-3, A-2-4	0	95-100	90-100	75-95	5-12	---	NP
	72-80	Sandy clay loam, sandy clay, fine sandy loam.	SC, SM-SC	A-2-4, A-2-6, A-4, A-6	0	95-100	90-100	80-95	25-45	19-40	6-20
68 Lake	0-80	Fine sand	SP-SM	A-3, A-2-4	0	100	100	85-95	5-12	---	NP
69 Millhopper	0-59	Fine sand	SP-SM, SM	A-3, A-2-4	0	100	97-100	75-100	5-20	---	NP
	59-80	Sandy loam, fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-4, A-2-6	0	100	97-100	75-95	17-40	<28	NP-14

See footnote at end of table.

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
70 Placid	0-18	Fine sand	SP, SP-SM, SM	A-3, A-2-4	0	100	100	90-100	1-20	---	NP
	18-80	Fine sand, sand, loamy fine sand.	SP, SP-SM, SM	A-3, A-2-4	0	100	100	90-100	1-20	---	NP
71*: Anclote	0-18	Fine sand	SP, SP-SM	A-3, A-2-4	0	100	95-100	85-100	2-12	---	NP
	18-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	100	95-100	85-100	2-12	---	NP
Tavares	0-86	Fine sand	SP, SP-SM	A-3	0	100	95-100	85-100	2-9	---	NP
Pomello	0-32	Fine sand	SP, SP-SM	A-3	0	100	100	80-95	1-8	---	NP
	32-42	Sand, fine sand	SP-SM, SM	A-3, A-2-4	0	100	100	80-95	6-15	---	NP
	42-80	Sand, fine sand	SP, SP-SM	A-3	0	100	100	80-95	4-10	---	NP
72 Orlando	0-21	Fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	85-100	1-12	---	NP
	21-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	85-100	1-12	---	NP
73 Zolfo	0-3	Fine sand	SP-SM	A-3, A-2-4	0	100	100	90-100	5-12	---	NP
	3-65	Fine sand, sand	SP-SM, SM	A-3, A-2-4	0	100	100	90-100	5-18	---	NP
	65-80	Fine sand, sand	SP-SM, SM	A-3, A-2-4	0	100	100	90-100	5-18	---	NP
74 Candler Variant	0-72	Fine sand	SP-SM, SM	A-3, A-2-4	0	100	100	95-100	5-20	---	NP
	72-80	Fine sand	SM	A-2-4	0	100	100	95-100	13-20	---	NP
75*. Beaches											
76 Bessie	0-35	Muck	Pt	A-8	0	---	---	---	---	---	---
	35-43	Clay, sandy clay	CH, SC	A-7	0	100	100	90-100	42-70	50-76	28-49
	43-80	Fine sand, loamy fine sand, fine sandy loam.	SP-SM, SM	A-2-4, A-3	0	100	90-100	80-100	8-25	---	NP

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated]

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	G/cm3	In/hr	In/in	pH	Mmhos/cm					Pct
1----------------	0-8	<2	1.36-1.44	6.0-20	0.08-0.10	4.5-5.5	<2	Low--------	0.20	5	2	1-2
Wauchula	8-19	<2	1.48-1.61	6.0-20	0.02-0.05	4.5-5.5	<2	Low--------	0.20			
	19-26	2-8	1.47-1.59	0.6-6.0	0.15-0.25	4.5-5.5	<2	Low--------	0.20			
	26-34	<2	1.48-1.61	6.0-20	0.08-0.10	4.5-5.5	<2	Low--------	0.20			
	34-80	15-30	1.60-1.69	0.6-6.0	0.11-0.17	4.5-5.5	<2	Low--------	0.37			
2----------------	0-6	1-6	1.20-1.50	6.0-20	0.05-0.10	3.6-5.5	<2	Low--------	0.20	5	2	1-2
Pomona	6-22	1-6	1.45-1.70	6.0-20	0.03-0.08	3.6-5.5	<2	Low--------	0.20			
	22-36	2-7	1.30-1.60	0.6-2.0	0.10-0.15	3.6-5.5	<2	Low--------	0.20			
	36-52	1-6	1.40-1.60	6.0-20	0.03-0.08	3.6-5.5	<2	Low--------	0.20			
	52-60	16-36	1.50-1.70	0.2-0.6	0.13-0.17	3.6-5.5	<2	Low--------	0.32			
3----------------	0-39	1-8	1.30-1.60	6.0-20	0.02-0.05	4.5-7.3	<2	Low--------	0.17	5	2	.5-6
Pineda	39-80	10-25	1.50-1.70	<0.2	0.10-0.15	7.3-8.4	<2	Low--------	0.24			
4----------------	0-23	1-3	1.40-1.55	6.0-20	0.02-0.05	5.1-7.8	<2	Low--------	0.17	5	2	1-4
Felda	23-35	13-30	1.50-1.65	0.6-6.0	0.10-0.15	6.6-7.8	<2	Low--------	0.24			
	35-80	1-10	1.50-1.65	6.0-20	0.02-0.05	6.6-8.4	<2	Low--------	0.17			
5----------------	0-27	<2	1.36-1.44	6.0-20	0.02-0.05	4.5-6.5	<2	Low--------	0.20	5	2	1-2
Myakka	27-38	2-8	1.47-1.59	0.6-6.0	0.10-0.15	4.5-6.5	<2	Low--------	0.20			
	38-80	<2	1.48-1.61	6.0-20	0.02-0.05	4.5-6.5	<2	Low--------	0.17			
6----------------	0-86	1-4	1.55-1.65	>20	0.02-0.05	4.5-6.0	<2	Very low	0.17	5	2	.5-1
Tavares												
7----------------	0-6	1-5	1.20-1.50	6.0-20	0.08-0.12	4.5-6.5	<2	Very low	0.20	5	2	1-3
Sparr	6-43	1-5	1.55-1.70	6.0-20	0.05-0.08	4.5-6.5	<2	Very low	0.20			
	43-48	15-32	1.55-1.70	0.6-2.0	0.11-0.15	4.5-6.0	<2	Low--------	0.24			
	48-59	15-38	1.55-1.75	0.6-2.0	0.15-0.18	4.5-6.0	<2	Low--------	0.37			
	59-80	15-30	1.55-1.70	0.6-2.0	0.11-0.15	4.5-6.0	<2	Low--------	0.37			
8----------------	0-9	8-12	1.20-1.35	6.0-20	0.15-0.20	3.6-5.5	<2	Low--------	0.17	5	2	5-10
Sellers	9-24	3-8	1.45-1.60	6.0-20	0.10-0.15	3.6-5.5	<2	Low--------	0.17			
	24-80	2-5	1.50-1.65	6.0-20	0.03-0.08	3.6-5.5	<2	Low--------	0.17			
9----------------	0-7	1-7	1.40-1.55	6.0-20	0.10-0.15	3.6-6.0	<2	Low--------	0.20	5	2	1-5
Ona	7-18	3-8	1.50-1.65	0.6-2.0	0.10-0.15	3.6-6.0	<2	Low--------	0.20			
	18-80	1-4	1.50-1.65	6.0-20	0.03-0.08	3.6-6.0	<2	Low--------	0.15			
10---------------	0-23	1-6	1.00-1.60	6.0-20	0.03-0.08	3.6-5.5	<2	Low--------	0.20	5	2	2-10
Vero	23-30	1-8	1.60-1.85	<0.2	0.10-0.15	4.5-7.3	<2	Low--------	0.20			
	30-80	12-32	1.50-1.70	<0.2	0.10-0.15	7.4-9.0	<2	Low--------	0.32			
11---------------	0-8	2-8	1.37-1.44	6.0-20	0.05-0.10	4.5-7.8	<2	Very low	0.10	5	2	<1
Adamsville	8-80	1-7	1.49-1.58	6.0-20	0.03-0.08	4.5-7.8	<2	Very low	0.10			
12---------------	0-80	1-3	1.45-1.60	>20	0.02-0.05	4.5-6.0	<2	Very low	0.15	5	2	<.5
Astatula												
13---------------	0-50	<3	1.35-1.55	>20	0.02-0.05	4.5-6.0	<2	Very low	0.10	5	2	<1
Candler	50-82	3-8	1.50-1.65	6.0-20	0.05-0.08	4.5-6.0	<2	Very low	0.10			
14---------------	0-65	<3	1.35-1.55	>20	0.02-0.05	4.5-6.0	<2	Very low	0.10	5	2	<1
Candler	65-80	3-8	1.50-1.65	6.0-20	0.05-0.08	4.5-6.0	<2	Very low	0.10			
15*:												
Tavares---------	0-86	1-4	1.55-1.65	>20	0.02-0.05	4.5-6.0	<2	Very low	0.17	5	2	.5-1
Urban land.												

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodi-bility group	Organic matter
									K	T		
	In	Pct	G/cm3	In/hr	In/in	pH	Mmhos/cm					Pct
16---------------	13-0	0-9	0.20-0.55	6.0-20	0.20-0.25	3.6-5.5	<2	Low-------	----	---	2	>25
Zephyr	0-18	1-4	1.45-1.65	6.0-20	0.05-0.10	3.6-5.5	<2	Low-------	0.24			
	18-48	14-28	1.60-1.70	0.06-0.2	0.10-0.15	3.6-5.5	<2	Low-------	0.37			
	48-67	5-20	1.60-1.75	0.6-6.0	0.07-0.12	3.6-5.5	<2	Low-------	0.32			
17---------------	0-4	1-5	1.20-1.50	6.0-20	0.05-0.08	4.5-6.0	<2	Low-------	0.15	5	2	1-2
Immokalee	4-33	1-5	1.45-1.70	6.0-20	0.02-0.05	4.5-6.0	<2	Low-------	0.15			
	33-43	2-7	1.30-1.60	0.6-2.0	0.10-0.15	4.5-6.0	<2	Low-------	0.20			
	43-80	1-5	1.40-1.60	6.0-20	0.02-0.05	4.5-6.0	<2	Low-------	0.15			
18---------------	0-5	1-6	1.40-1.55	6.0-20	<0.05	4.5-5.5	<2	Low-------	0.15	5	1	2-4
Electra Variant	5-39	1-6	1.45-1.70	6.0-20	<0.05	4.5-5.5	<2	Low-------	0.15			
	39-51	1-6	1.50-1.70	2.0-6.0	0.10-0.15	4.5-5.5	<2	Low-------	0.20			
	51-70	1-6	1.45-1.70	6.0-20	0.05-0.10	4.5-5.5	<2	Low-------	0.15			
	70-78	18-35	1.60-1.70	0.06-0.2	0.10-0.15	5.6-7.3	<2	Low-------	0.32			
	78	---	---	---	---	---	---	----------	----			
19---------------	0-26	<2	1.45-1.60	>20	0.02-0.05	4.5-6.0	<2	Very low	0.15	5	1	<.5
Paola	26-80	<3	1.45-1.60	>20	0.02-0.05	4.5-6.0	<2	Very low	0.15			
20---------------	0-17	2-6	1.35-1.50	6.0-20	0.05-0.10	3.6-7.8	2-4	Low-------	0.17	2	2	2-4
Aripeka	17-26	15-30	1.60-1.70	2.0-6.0	0.10-0.15	6.6-8.4	2-4	Low-------	0.20			
	26	---	---	---	---	---	---	----------	----			
21---------------	0-13	1-6	1.35-1.45	6.0-20	0.03-0.07	3.6-5.5	<2	Low-------	0.20	5	2	1-5
Smyrna	13-25	3-8	1.35-1.45	0.6-6.0	0.10-0.15	3.6-5.5	<2	Low-------	0.20			
	25-80	1-6	1.50-1.65	6.0-20	0.03-0.07	4.5-5.5	<2	Low-------	0.17			
22---------------	0-10	.5-4	1.40-1.55	>20	0.03-0.07	3.6-7.3	<2	Low-------	0.10	5	2	.5-2
Basinger	10-19	1-6	1.40-1.65	>20	0.10-0.15	3.6-7.3	<2	Low-------	0.10			
	19-80	1-3	1.50-1.70	>20	0.05-0.10	3.6-7.3	<2	Low-------	0.10			
23---------------	0-10	.5-4	1.40-1.55	>20	0.03-0.07	3.6-7.3	<2	Low-------	0.10	5	2	.2-1
Basinger	10-30	1-6	1.40-1.65	>20	0.10-0.15	3.6-7.3	<2	Low-------	0.10			
	30-80	1-3	1.50-1.70	>20	0.05-0.10	3.6-7.3	<2	Low-------	0.10			
24*.												
Quartzipsamments												
25---------------	0-4	3-5	1.35-1.50	6.0-20	0.05-0.10	5.1-6.5	<2	Low-------	0.20	3	1	.5-2
Jonesville	4-22	<2	1.45-1.55	6.0-20	<0.05	5.1-6.5	<2	Low-------	0.20			
	22-28	15-35	1.60-1.70	0.2-2.0	0.05-0.10	6.6-7.8	<2	Low-------	0.32			
	28	---	---	---	---	---	---	----------	----			
26---------------	0-3	2-6	1.35-1.45	6.0-20	0.03-0.08	3.6-6.0	<2	Low-------	0.17	5	2	1-2
Narcoossee	3-9	1-4	1.50-1.65	6.0-20	0.02-0.05	3.6-6.0	<2	Low-------	0.17			
	9-12	2-6	1.40-1.60	2.0-6.0	0.05-0.08	3.6-6.0	<2	Low-------	0.17			
	12-75	1-4	1.50-1.65	6.0-20	0.02-0.05	3.6-6.0	<2	Low-------	0.17			
27---------------	0-14	2-6	1.25-1.50	6.0-20	0.10-0.15	6.1-7.8	<2	Very low	0.17	5	2	5-15
Anclote	14-80	1-4	1.50-1.65	6.0-20	0.03-0.10	6.1-7.8	<2	Very low	0.17			
28*.												
Pits												
29*--------------	0-8	13-19	1.55-1.65	0.6-2.0	0.15-0.20	7.9-8.4	>16	Low-------	0.20	1	3	2-5
Lacoochee	8-18	3-12	1.50-1.65	2.0-6.0	0.10-0.15	6.6-8.4	>16	Low-------	0.17			
	18-36	---	---	---	---	---	---	----------	----			
	36	---	---	---	---	---	---	----------	----			
30*:												
Okeelanta-------	0-27	---	0.22-0.38	6.0-20	0.20-0.30	4.5-8.4	<2	Low-------	----	---	2	>70
	27-65	1-5	1.30-1.55	6.0-20	0.05-0.10	5.1-7.8	<2	Low-------	0.15			
Terra Ceia------	0-80	---	0.15-0.35	6.0-20	0.30-0.50	5.6-8.4	<2	Low-------	----	---	2	>60
31*:												
Udalfic Arents.												

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group	Organic matter
	In	Pct	G/cm3	In/hr	In/in	pH	Mmhos/cm					Pct
31*:												
Urban land.												
32---------------	0-80	1-3	1.45-1.65	6.0-20	0.03-0.06	4.5-5.5	<2	Low--------	0.15	5	2	.5-1
Lake												
34---------------	0-80	<5	1.30-1.65	>20	0.02-0.05	4.5-7.8	<2	Low--------	0.15	5	2	1-5
Pompano												
35---------------	0-22	<5	1.25-1.50	6.0-20	0.02-0.05	4.5-6.5	<2	Low--------	0.17	5	2	2-8
EauGallie	22-30	1-8	1.45-1.60	0.6-6.0	0.05-0.10	5.1-6.5	<2	Low--------	0.20			
	30-51	1-5	1.45-1.65	6.0-20	0.02-0.05	5.6-7.8	<2	Low--------	0.17			
	51-80	13-31	1.55-1.70	0.6-6.0	0.10-0.15	5.6-7.8	<2	Low--------	0.32			
36*:												
Candler---------	0-60	<3	1.35-1.55	>20	0.02-0.05	4.5-6.0	<2	Very low	0.10	5	2	<1
	60-80	3-8	1.50-1.65	6.0-20	0.05-0.08	4.5-6.0	<2	Very low	0.10			
Urban land.												
37*:												
Paola-----------	0-26	<2	1.45-1.60	>20	0.02-0.05	4.5-6.0	<2	Very low	0.15	5	1	<.5
	26-80	<3	1.45-1.60	>20	0.02-0.05	4.5-6.0	<2	Very low	0.15			
Urban land.												
38*.												
Urban land												
39*--------------	0-11	7-20	1.45-1.50	2.0-6.0	0.10-0.15	6.1-7.3	<2	Low--------	0.24	5	3	2-7
Chobee	11-56	20-35	1.55-1.75	<0.2	0.12-0.17	7.4-9.0	<2	Moderate	0.32			
	56-80	7-20	1.60-1.75	0.2-6.0	0.06-0.10	7.4-9.0	<2	Low--------	0.20			
40---------------	0-10	2-8	1.35-1.45	6.0-20	0.05-0.08	4.5-6.5	<2	Low--------	0.24	5	2	1-4
Paisley	10-80	45-65	1.55-1.65	0.06-0.2	0.15-0.18	5.6-8.4	<2	High-------	0.32			
41*:												
Pits.												
Dumps.												
42---------------	0-32	>2	1.35-1.65	>20	0.02-0.05	4.5-6.0	<2	Very low	0.17	5	1	>1
Pomello	32-41	>5	1.45-1.60	2.0-6.0	0.10-0.15	4.5-6.0	<2	Very low	0.20			
	41-80	>2	1.35-1.65	6.0-20	0.02-0.05	4.5-6.0	<2	Very low	0.17			
43---------------	0-63	5-12	1.25-1.50	6.0-20	0.05-0.08	4.5-6.0	<2	Low--------	0.17	5	2	<2
Arredondo	63-87	15-25	1.55-1.70	0.6-6.0	0.12-0.17	4.5-6.0	<2	Low--------	0.37			
44---------------	0-52	5-12	1.25-1.50	6.0-20	0.05-0.08	4.5-6.0	<2	Low--------	0.17	5	2	<2
Arredondo	52-55	10-18	1.45-1.60	2.0-6.0	0.10-0.15	4.5-6.0	<2	Low--------	0.24			
	55-80	15-25	1.55-1.70	0.6-6.0	0.12-0.17	4.5-6.0	<2	Low--------	0.37			
45---------------	0-28	1-7	1.25-1.50	6.0-20	0.05-0.07	4.5-5.5	<2	Low--------	0.17	5	2	<2
Kendrick	28-80	15-25	1.55-1.70	0.6-2.0	0.12-0.15	4.5-5.5	<2	Low--------	0.32			
46---------------	0-18	1-4	1.30-1.55	6.0-20	0.03-0.07	4.5-5.5	<2	Low--------	0.15	5	2	<1
Cassia	18-31	2-10	1.30-1.55	0.6-6.0	0.10-0.15	4.5-5.5	<2	Low--------	0.20			
	31-65	1-5	1.40-1.60	6.0-20	0.03-0.07	4.5-5.5	<2	Low--------	0.15			
47---------------	0-31	>5	0.25-0.35	2.0-6.0	0.20-0.25	6.1-7.8	>16	Low--------	----	---	2	>30
Weekiwachee	31-39	1-7	1.50-1.65	2.0-6.0	0.10-0.15	6.1-7.8	>16	Low--------	0.24			
	39-44	---	---	---	---	---	---	----------	----			
	44	---	---	---	---	---	---	----------	----			
48---------------	0-36	2-12	1.35-1.60	6.0-20	0.05-0.10	4.5-5.5	<2	Low--------	0.20	5	2	1-4
Lochloosa	36-42	13-20	1.55-1.70	2.0-6.0	0.10-0.15	4.5-5.5	<2	Low--------	0.24			
	42-63	15-35	1.55-1.70	0.6-2.0	0.12-0.15	4.5-5.5	<2	Low--------	0.32			
	63-72	20-45	1.60-1.70	0.6-2.0	0.13-0.18	4.5-5.5	<2	Low--------	0.28			
	72-80	15-35	1.55-1.70	0.6-2.0	0.12-0.15	4.5-5.5	<2	Low--------	0.28			

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	G/cm3	In/hr	In/in	pH	Mmhos/cm					Pct
49	0-22	2-12	1.35-1.60	6.0-20	0.05-0.10	4.5-6.0	<2	Low	0.20	5	1	1-4
Blichton	22-28	13-20	1.55-1.70	2.0-6.0	0.10-0.15	4.5-5.5	<2	Low	0.24			
	28-63	20-35	1.60-1.70	0.2-0.6	0.10-0.15	4.5-5.5	<2	Moderate	0.32			
	63-80	15-25	1.55-1.70	2.0-6.0	0.08-0.12	4.5-5.5	<2	Low	0.32			
50	0-38	2-12	1.35-1.60	6.0-20	0.05-0.10	4.5-6.0	<2	Low	0.20	5	1	1-4
Blichton	38-44	13-20	1.55-1.70	2.0-6.0	0.10-0.15	4.5-5.5	<2	Low	0.24			
	44-50	20-35	1.60-1.70	0.2-0.6	0.10-0.15	4.5-5.5	<2	Moderate	0.32			
	50-62	20-45	1.60-1.70	0.2-0.6	0.10-0.15	4.5-5.5	<2	Moderate	0.32			
	62-80	15-25	1.55-1.70	2.0-6.0	0.08-0.12	4.5-5.5	<2	Low	0.32			
51	0-27	2-12	1.35-1.60	6.0-20	0.05-0.10	4.5-6.0	<2	Low	0.20	5	1	1-4
Blichton	27-39	13-20	1.55-1.70	2.0-6.0	0.10-0.15	4.5-5.5	<2	Low	0.24			
	39-55	20-35	1.60-1.70	0.2-0.6	0.10-0.15	4.5-5.5	<2	Moderate	0.32			
	55-80	20-45	1.60-1.70	0.2-0.6	0.10-0.15	4.5-5.5	<2	Moderate	0.32			
52	0-32	---	0.25-0.50	6.0-20	0.20-0.25	4.5-5.5	<2	Low	----	---	2	>20
Samsula	32-80	1-14	1.35-1.55	6.0-20	0.02-0.05	3.6-5.5	<2	Low	0.17			
53	0-6	1-5	1.20-1.50	6.0-20	0.08-0.12	4.5-6.5	<2	Very low	0.20	5	2	1-3
Sparr	6-57	1-5	1.55-1.70	6.0-20	0.05-0.08	4.5-6.5	<2	Very low	0.20			
	57-61	15-32	1.55-1.70	0.6-2.0	0.11-0.15	4.5-6.5	<2	Low	0.24			
	61-69	15-38	1.55-1.75	0.6-2.0	0.15-0.18	4.5-6.5	<2	Low	0.37			
	69-80	15-30	1.55-1.70	0.6-2.0	0.11-0.15	4.5-6.5	<2	Low	0.37			
54	0-5	4-10	1.20-1.50	2.0-20	0.05-0.15	3.6-6.0	<2	Low	0.28	5	2	2-4
Flemington Variant	5-80	35-60	1.55-1.65	<0.06	0.10-0.20	3.6-5.5	<2	High	0.37			
55	0-11	10-18	1.25-1.45	2.0-20	0.20-0.25	6.6-7.8	>16	Low	0.20	2	2	10-15
Homosassa	11-16	3-12	1.45-1.60	2.0-20	0.10-0.15	6.6-7.8	>16	Low	0.17			
	16-28	3-12	1.50-1.65	2.0-20	0.07-0.12	6.6-7.8	>16	Low	0.17			
	28-37	---	---	---	---	---	---	----------	----			
	37	---	---	---	---	---	---	----------	----			
56*:												
EauGallie	0-17	<5	1.25-1.50	6.0-20	0.02-0.05	4.5-6.5	<2	Low	0.17	5	2	2-8
	17-21	1-8	1.45-1.60	0.6-6.0	0.05-0.10	5.1-6.5	<2	Low	0.20			
	21-48	1-5	1.45-1.65	6.0-20	0.02-0.05	5.6-7.8	<2	Low	0.17			
	48-55	13-31	1.55-1.70	0.6-6.0	0.10-0.15	5.6-7.8	<2	Low	0.32			
	55-80	1-13	1.45-1.55	2.0-6.0	0.05-0.10	5.6-7.8	<2	Low	0.32			
Urban land.												
57	0-16	1-6	1.35-1.55	6.0-20	0.02-0.07	3.6-5.5	<2	Low	0.20	4	2	2-5
Vero Variant	16-26	1-8	1.45-1.60	0.6-2.0	0.10-0.15	4.5-7.3	<2	Low	0.20			
	26-29	1-6	1.50-1.65	6.0-20	0.05-0.10	5.6-8.4	<2	Low	0.20			
	29-39	12-32	1.60-1.70	<0.2	0.10-0.15	7.4-9.0	<2	Low	0.32			
	39-45	---	---	---	---	---	---	----------	----			
	45	---	---	---	---	---	---	----------	----			
58	0-22	>5	0.25-0.30	6.0-20	0.30-0.50	3.6-4.4	<2	Very low	----	---	2	>30
Tomoka	22-27	1-9	1.35-1.60	6.0-20	0.05-0.10	3.6-4.4	<2	Very low	0.17			
	27-55	15-30	1.60-1.70	0.6-6.0	0.10-0.15	3.6-4.4	<2	Low	0.28			
59	0-22	<5	1.45-1.55	6.0-20	0.03-0.10	3.6-6.0	<2	Low	0.15	5	2	1-2
Newnan	22-33	2-8	1.40-1.55	2.0-20	0.07-0.15	3.6-6.0	<2	Low	0.20			
	33-44	<5	1.45-1.65	6.0-20	0.05-0.12	3.6-6.0	<2	Low	0.15			
	44-80	12-30	1.65-1.80	0.06-0.6	0.07-0.15	3.6-6.0	<2	Low	0.28			
60*:												
Palmetto	0-10	1-7	1.40-1.60	6.0-20	0.05-0.10	3.6-5.5	<2	Low	0.17	5	2	1-3
	10-46	3-8	1.50-1.60	6.0-20	0.05-0.10	3.6-5.5	<2	Low	0.17			
	46-80	13-30	1.60-1.70	0.2-0.6	0.10-0.15	4.5-5.5	<2	Low	0.28			
Zephyr	13-0	0-9	0.20-0.55	6.0-20	0.20-0.25	3.6-5.5	<2	Low	----	---	2	>30
	0-18	1-4	1.45-1.65	6.0-20	0.05-0.10	3.6-5.5	<2	Low	0.24			
	18-48	14-28	1.60-1.70	0.06-0.2	0.10-0.15	3.6-5.5	<2	Low	0.37			
	48-67	5-20	1.60-1.75	0.6-6.0	0.07-0.12	3.6-5.5	<2	Low	0.32			

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	G/cm3	In/hr	In/in	pH	Mmhos/cm					Pct
60*:												
Sellers---------	0-5	8-12	1.20-1.35	6.0-20	0.15-0.20	3.6-5.5	<2	Low-------	0.17	5	2	5-10
	5-28	3-8	1.45-1.60	6.0-20	0.10-0.15	3.6-5.5	<2	Low-------	0.17			
	28-80	2-5	1.50-1.65	6.0-20	0.03-0.08	3.6-5.5	<2	Low-------	0.17			
61---------------	0-6	<1-8	1.20-1.50	>20	0.02-0.05	4.5-7.8	<2	Low-------	0.15	5	2	1-4
Pompano	6-80	<1-8	1.45-1.65	>20	0.02-0.05	4.5-7.8	<2	Low-------	0.15			
62---------------	0-27	1-7	1.25-1.50	6.0-20	0.05-0.07	4.5-5.5	<2	Low-------	0.17	5	2	<2
Kendrick	27-35	15-25	1.55-1.70	0.6-2.0	0.12-0.15	4.5-5.5	<2	Low-------	0.32			
	35-70	20-40	1.55-1.75	0.6-2.0	0.12-0.17	4.5-5.5	<2	Low-------	0.32			
	70-80	15-25	1.55-1.75	0.6-2.0	0.12-0.15	4.5-5.5	<2	Low-------	0.32			
63---------------	0-16	2-8	1.25-1.45	6.0-20	0.15-0.25	5.6-7.3	<2	Low-------	0.17	5	2	6-12
Delray	16-48	1-7	1.50-1.65	6.0-20	0.05-0.08	6.1-7.3	<2	Low-------	0.17			
	48-80	13-30	1.45-1.60	0.6-6.0	0.10-0.15	6.6-7.8	<2	Low-------	0.24			
64---------------	0-29	3-12	1.35-1.60	6.0-20	0.05-0.10	4.5-6.0	<2	Low-------	0.20	5	2	1-3
Nobleton	29-36	22-40	1.55-1.65	0.2-2.0	0.12-0.18	3.6-5.5	<2	Low-------	0.32			
	36-47	36-50	1.55-1.65	0.2-0.6	0.14-0.18	3.6-5.5	<2	Moderate	0.28			
	47-80	22-40	1.55-1.65	0.2-2.0	0.12-0.18	3.6-5.5	<2	Moderate	0.32			
65---------------	0-80	8-11	1.50-1.65	6.0-20	0.07-0.10	4.5-6.0	<2	Very low	0.17	5	2	2-5
Gainesville												
66---------------	0-9	3-12	1.50-1.65	6.0-20	0.06-0.10	4.5-6.0	<2	Low-------	0.20	5	2	1-3
Micanopy	9-15	25-38	1.55-1.65	0.6-2.0	0.12-0.15	4.5-6.0	<2	Moderate	0.32			
	15-44	40-60	1.60-1.70	0.06-0.2	0.15-0.18	4.5-6.0	<2	High------	0.28			
	44-89	25-38	1.55-1.65	0.06-0.2	0.12-0.15	4.5-6.0	<2	High------	0.32			
67---------------	0-72	2-6	1.45-1.65	6.0-20	0.03-0.08	4.5-5.5	<2	Very low	0.15	5	2	1-3
Kanapaha	72-80	12-18	1.55-1.65	0.2-0.6	0.10-0.15	4.5-5.5	<2	Low-------	0.32			
68---------------	0-80	1-3	1.45-1.65	6.0-20	0.03-0.06	4.5-5.5	<2	Low-------	0.15	5	2	.5-1
Lake												
69---------------	0-59	2-8	1.50-1.67	6.0-20	0.05-0.10	4.5-6.5	<2	Low-------	0.17	5	2	.5-2
Millhopper	59-80	12-28	1.80-1.90	0.6-2.0	0.10-0.15	4.5-6.0	<2	Low-------	0.32			
70---------------	0-18	<10	1.20-1.40	6.0-20	0.15-0.20	3.6-5.5	<2	Very low	0.17	5	2	2-10
Placid	18-80	<10	1.30-1.60	6.0-20	0.05-0.08	3.6-6.5	<2	Very low	0.17			
71*:												
Anclote---------	0-18	2-8	1.30-1.45	6.0-20	0.10-0.15	6.1-7.8	<2	Low-------	0.17	5	2	2-10
	18-80	2-8	1.50-1.65	6.0-20	0.03-0.10	6.1-7.8	<2	Low-------	0.17			
Tavares---------	0-80	<3	1.35-1.65	>20	<0.05	4.5-6.0	<2	Low-------	0.17	5	2	<2
Pomello---------	0-32	<2	1.35-1.65	>20	<0.05	4.5-6.0	<2	Low-------	0.17	5	1	<1
	32-42	<5	1.45-1.60	2.0-6.0	0.10-0.15	4.5-6.0	<2	Low-------	0.20			
	42-80	<2	1.35-1.65	>20	<0.05	4.5-6.0	<2	Low-------	0.17			
72---------------	0-21	1-8	1.35-1.45	6.0-20	0.07-0.12	4.5-6.5	<2	Low-------	0.15	5	2	1-5
Orlando	21-80	1-8	1.40-1.60	6.0-20	0.03-0.06	4.5-6.0	<2	Low-------	----			
73---------------	0-3	1-5	1.40-1.50	>20	0.05-0.11	4.5-7.3	<2	Low-------	0.10	5	2	.5-1
Zolfo	3-65	1-5	1.50-1.60	>20	0.03-0.10	4.5-7.3	<2	Low-------	0.10			
	65-80	1-5	1.30-1.40	0.6-2.0	0.10-0.15	3.6-6.5	<2	Low-------	0.20			
74---------------	0-72	.5-2	1.35-1.55	6.0-20	0.05-0.10	4.5-6.0	<2	Low-------	0.15	5	1	2-5
Candler Variant	72-80	.5-2	1.35-1.55	6.0-20	0.05-0.10	4.5-6.0	<2	Low-------	0.15			
75*.												
Beaches												
76---------------	0-35	5-20	0.10-0.20	6.0-20	0.25-0.35	5.1-7.3	>16	Low-------	----	---	2	<30
Bessie	35-43	35-60	0.60-1.00	<0.2	0.15-0.18	5.6-7.8	>16	High------	0.37			
	43-80	5-20	1.30-1.50	6.0-20	0.05-0.10	7.9-9.0	>16	Low-------	0.28			

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 17.--SOIL AND WATER FEATURES

[The definitions of "flooding" and "water table" in the Glossary explain terms such as "rare," "brief," "apparent," and "perched." The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern]

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth*	Kind	Months	Depth	Hardness	Initial	Total	Uncoated steel	Concrete
					Ft			In		In	In		
1 Wauchula	B/D	None	---	---	0-1.0	Apparent	Jun-Feb	>60	---	---	---	High	High.
2 Pomona	B/D	None	---	---	0-1.0	Apparent	Jul-Sep	>60	---	---	---	High	High.
3 Pineda	B/D	Rare	---	---	0-1.0	Apparent	Jun-Nov	>60	---	---	---	High	Low.
4 Felda	B/D	None	---	---	0-1.0	Apparent	Jul-Mar	>60	---	---	---	High	Moderate.
5 Myakka	B/D	None	---	---	0-1.0	Apparent	Jun-Nov	>60	---	---	---	High	High.
6 Tavares	A	None	---	---	3.5-6.0	Apparent	Jun-Dec	>60	---	---	---	Low	High.
7 Sparr	C	None	---	---	1.5-3.5	Apparent	Jul-Oct	>60	---	---	---	Moderate	High.
8 Sellers	B/D	None	---	---	+2-0	Apparent	Jun-Mar	>60	---	---	---	High	High.
9 Ona	B/D	None	---	---	0-1.0	Apparent	Jun-Nov	>60	---	---	---	High	High.
10 Vero	B/D	None	---	---	0-1.0	Apparent	Jun-Oct	>60	---	---	---	Moderate	High.
11 Adamsville	C	None	---	---	2.0-3.5	Apparent	Jun-Nov	>60	---	---	---	Low	Moderate.
12 Astatula	A	None	---	---	>6.0	---	---	>60	---	---	---	Low	High.
13, 14 Candler	A	None	---	---	>6.0	---	---	>60	---	---	---	Low	High.
15**:													
Tavares	A	None	---	---	3.5-6.0	Apparent	Jun-Dec	>60	---	---	---	Low	High.
Urban land.													
16 Zephyr	D	None	---	---	+2-1.0	Apparent	Jun-Feb	>60	---	2-4	>16	High	High.
17 Immokalee	B/D	None	---	---	0-1.0	Apparent	Jun-Nov	>60	---	---	---	High	High.

See footnotes at end of table.

TABLE 17.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth*	Kind	Months	Depth	Hardness	Initial	Total	Uncoated steel	Concrete
					Ft			In		In	In		
18--------------- Electra Variant	C	None--------	---	---	2.0-3.5	Apparent	Jul-Oct	>60	---	---	---	Low------	High.
19--------------- Paola	A	None--------	---	---	>6.0	---	---	>60	---	---	---	Low------	High.
20--------------- Aripeka	C	Occasional	Very brief	Jan-Dec	1.5-2.5	Apparent	Jul-Sep	23-40	Hard	---	---	High-----	Low.
21--------------- Smyrna	A/D	None--------	---	---	0-1.0	Apparent	Jul-Oct	>60	---	---	---	High-----	High.
22--------------- Basinger	A/D	None--------	---	---	0-1.0	Apparent	Jun-Feb	>60	---	---	---	High-----	Moderate.
23--------------- Basinger	B/D	None--------	---	---	+2-1.0	Apparent	Jun-Feb	>60	---	---	---	High-----	Moderate.
24** Quartzipsamments													
25--------------- Jonesville	B	None--------	---	---	>6.0	---	---	20-40	Soft	---	---	Low------	Low.
26--------------- Narcoossee	C	None--------	---	---	2.0-3.5	Apparent	Jun-Nov	>60	---	---	---	Moderate	High.
27--------------- Anclote	D	None--------	---	---	+2-1.0	Apparent	Jun-Mar	>60	---	---	---	Moderate	Moderate.
28**. Pits													
29**------------- Lacoochee	D	Frequent----	Very long	Jan-Dec	0-0.5	Apparent	Jan-Dec	20-40	Hard	---	---	High-----	Low.
30**:													
Okeelanta--------	A/D	None--------	---	---	+1-0	Apparent	Jun-Jan	>60	---	16-20	16-30	High-----	Moderate.
Terra Ceia-------	B/D	None--------	---	---	+1-1.0	Apparent	Jan-Dec	>60	---	16-20	50-60	Moderate	Moderate.
31**: Udalfic Arents.													
Urban land.													
32--------------- Lake	A	None--------	---	---	>6.0	---	---	>60	---	---	---	Low------	High.
34--------------- Pompano	B/D	None--------	---	---	0-1.0	Apparent	Jun-Nov	>60	---	---	---	High-----	Moderate.
35--------------- EauGallie	B/D	None--------	---	---	0-1.0	Apparent	Jun-Oct	>60	---	---	---	High-----	Moderate.

See footnotes at end of table.

TABLE 17.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth*	Kind	Months	Depth	Hardness	Initial	Total	Uncoated steel	Concrete
					Ft			In		In	In		
36**:													
Candler	A	None	---	---	>6.0	---	---	>60	---	---	---	Low	High.
Urban land.													
37**:													
Paola	A	None	---	---	>6.0	---	---	>60	---	---	---	Low	High.
Urban land.													
38**. Urban land													
39** Chobee	B/D	Frequent	Very long	Jun-Feb	0-1.0	Apparent	Jun-Feb	>60	---	---	---	Moderate	Low.
40 Paisley	D	Rare	---	---	0-1.0	Apparent	Jun-Nov	>60	---	---	---	High	Moderate.
41**:													
Pits.													
Dumps.													
42 Pomello	C	None	---	---	2.0-3.5	Apparent	Jul-Nov	>60	---	---	---	Low	High.
43, 44 Arredondo	A	None	---	---	>6.0	---	---	>60	---	---	---	Moderate	High.
45 Kendrick	A	None	---	---	>6.0	---	---	>60	---	---	---	Moderate	High.
46 Cassia	C	None	---	---	1.5-3.5	Apparent	Jul-Jan	>60	---	---	---	Moderate	High.
47 Weekiwachee	D	Frequent	Very long	Jan-Dec	0-0.5	Apparent	Jan-Dec	40-51	Hard	---	---	High	Low.
48 Lochloosa	C	None	---	---	2.5-5.0	Apparent	Jul-Oct	>60	---	---	---	High	High.
49, 50, 51 Blichton	D	None	---	---	0-1.0	Apparent	Jun-Sep	>60	---	---	---	High	High.
52 Samsula	B/D	None	---	---	+2-1.0	Apparent	Jan-Dec	>60	---	16-20	30-36	High	High.
53 Sparr	C	None	---	---	1.5-3.5	Apparent	Jul-Oct	>60	---	---	---	Moderate	High.
54 Flemington Variant	D	None	---	---	0-2.5	Perched	Jun-Sep	>60	---	---	---	High	High.

See footnotes at end of table.

TABLE 17.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth*	Kind	Months	Depth	Hardness	Initial	Total	Uncoated steel	Concrete
					Ft			In		In	In		
55 Homosassa	D	Frequent	Very long	Jan-Dec	0-0.5	Apparent	Jan-Dec	23-40	Hard	---	---	High	Low.
56**:													
EauGallie	B/D	None	---	---	0-1.0	Apparent	Jun-Oct	>60	---	---	---	High	Moderate.
Urban land.													
57 Vero Variant	B/D	None	---	---	0-1.0	Apparent	Jun-Oct	40-80	Hard	---	---	Moderate	Moderate.
58 Tomoka	A/D	None	---	---	+1-0	Apparent	Jun-Apr	>60	---	---	24	High	High.
59 Newnan	C	None	---	---	1.5-2.5	Apparent	Aug-Feb	>60	---	---	---	Low	High.
60**:													
Palmetto	D	None	---	---	+2-1.0	Apparent	Jun-Feb	>60	---	---	---	High	High.
Zephyr	D	None	---	---	+2-1.0	Apparent	Jun-Feb	>60	---	2-4	>16	High	High.
Sellers	B/D	None	---	---	+2-0	Apparent	Jun-Mar	>60	---	---	---	High	High.
61 Pompano	D	Frequent	Brief	Jun-Nov	0-1.0	Apparent	Jun-Nov	>60	---	---	---	High	Moderate.
62 Kendrick	A	None	---	---	>6.0	---	---	>60	---	---	---	Moderate	High.
63 Delray	D	None	---	---	+2-1.0	Apparent	Jun-Dec	>60	---	---	---	Moderate	Low.
64 Nobleton	C	None	---	---	1.5-3.5	Perched	Jul-Oct	>60	---	---	---	High	High.
65 Gainesville	A	None	---	---	>6.0	---	---	>60	---	---	---	Low	High.
66 Micanopy	C	None	---	---	1.5-2.5	Perched	Jul-Nov	>60	---	---	---	High	High.
67 Kanapaha	A/D	None	---	---	0-1.0	Apparent	Jul-Sep	>60	---	---	---	High	High.
68 Lake	A	None	---	---	>6.0	---	---	>60	---	---	---	Low	High.
69 Millhopper	A	None	---	---	3.5-6.0	Perched	Aug-Feb	>60	---	---	---	Low	Moderate.
70 Placid	B/D	None	---	---	0-1.0	Apparent	Jun-Mar	>60	---	---	---	High	High.

See footnotes at end of table.

TABLE 17.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth*	Kind	Months	Depth	Hardness	Initial	Total	Uncoated steel	Concrete
					Ft			In		In	In		
71**:													
Anclote----------	D	Frequent----	Long------	Jun-Nov	0-1.0	Apparent	Jun-Feb	>60	---	---	---	High-----	Moderate.
Tavares----------	A	Occasional	Long------	Jul-Nov	3.5-6.0	Apparent	Jun-Dec	>60	---	---	---	Low------	High.
Pomello----------	C	Occasional	Long------	Jul-Nov	2.0-3.5	Apparent	Jun-Dec	>60	---	---	---	Low------	High.
72---------------- Orlando	A	None--------	---	---	>6.0	---	---	>60	---	---	---	Low------	High.
73---------------- Zolfo	C	None--------	---	---	2.0-3.5	Apparent	Jun-Nov	>60	---	---	---	Low------	Moderate.
74---------------- Candler Variant	A	None--------	---	---	>6.0	---	---	>60	---	---	---	Low------	High.
75** Beaches													
76---------------- Bessie	D	Frequent----	Very long	Jan-Dec	0-1.0	Apparent	Jan-Dec	>60	---	16-18	16-24	High-----	High.

* The plus sign preceding the range in depth indicates that the water table is above the surface of the soil. The first numeral in the range indicates how high the water is above the surface. The second numeral indicates the depth below the surface.

** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 18.--PHYSICAL ANALYSES OF SELECTED SOILS

Soil series and sample numbers	Depth	Horizon	Class and particle-size distribution (Percent less than 2 mm)								Hydraulic conductivity (saturated)	Bulk density (field moisture)	Water content		
			Sand						Silt (0.05-0.002)	Clay (< 0.002)			1/10 bar	1/3 bar	15 bar
			Very coarse (2.0-1.0)	Coarse (1.0 0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	Total (2.0-0.05)							
	In										Cm/hr	G/cm^3	-----Pct (wt)----		
Adamsville:															
S78FL-101-21-1	0-3	A11	0.0	1.9	27.9	48.5	17.6	95.9	3.1	1.0	23.9	1.52	7.4	4.0	2.2
S78FL-101-21-2	3-8	A12	0.1	2.1	27.2	47.7	18.4	95.5	3.5	1.0	25.4	1.59	5.6	2.7	1.0
S78FL-101-21-3	8-23	C1	0.0	2.2	27.1	48.3	18.0	95.6	3.3	1.1	35.9	1.56	5.5	2.5	0.7
S78FL-101-21-4	23-40	C2	0.0	2.2	25.0	50.0	18.6	95.8	3.2	1.0	33.3	1.61	5.0	2.0	0.6
S78FL-101-21-5	40-57	C2	0.1	2.1	25.7	51.3	17.2	96.4	2.9	0.7	25.2	1.58	4.8	2.3	0.4
S78FL-101-21-6	57-80	C3	0.1	2.4	28.3	47.6	17.8	96.2	3.3	0.5	26.9	1.61	3.7	1.2	0.7
Aripeka:															
S78FL-101-30-1	0-2	A11	0.2	2.3	11.6	63.4	20.4	97.9	1.6	0.5	---	---	---	---	---
S78FL-101-30-2	2-9	A12	0.1	2.7	12.0	69.5	12.7	97.0	2.4	0.6	10.4	1.59	7.4	5.0	1.4
S78FL-101-30-3	9-12	A2	0.2	2.9	9.7	68.7	15.5	97.0	2.5	0.5	13.0	1.55	4.5	2.2	1.5
S78FL-101-30-4	12-17	B21t	0.4	3.4	9.7	68.1	13.1	94.7	2.6	2.7	---	---	---	---	---
S78FL-101-30-5	17-23	B22t	0.8	4.0	7.8	51.0	15.0	78.6	5.2	16.2	---	---	---	---	---
Arrendondo*:															
S77FL-101-13-1	0-5	Ap	0.0	0.5	8.0	78.5	9.3	96.3	1.8	1.9	13.1	1.65	8.4	5.1	2.3
S77FL-101-13-2	5-8	A12	0.1	0.6	8.6	77.5	8.9	95.7	2.5	1.8	11.8	1.67	9.9	7.1	1.9
S77FL-101-13-3	8-18	A21	0.0	0.5	8.5	77.9	9.0	95.9	2.3	1.8	21.5	1.58	6.5	4.2	1.4
S77FL-101-13-4	18-35	A22	0.0	0.5	8.4	79.0	7.9	95.8	2.2	2.0	36.8	1.53	5.2	3.5	0.8
S77FL-101-13-5	35-58	A23	0.0	0.4	8.0	79.0	9.2	96.6	2.0	1.4	28.7	1.50	5.0	3.2	1.1
S77FL-101-13-6	58-63	B1	0.0	0.6	8.5	72.4	8.8	90.3	2.1	7.6	11.8	1.53	8.9	6.7	4.0
S77FL-101-13-7	63-68	B21t	0.0	0.8	8.0	59.4	8.2	76.4	3.4	20.2	1.4	1.60	17.0	14.5	8.9
S77FL-101-13-8	68-72	B22t	0.0	0.6	7.2	54.0	7.6	69.4	4.6	26.0	0.5	1.57	20.4	17.5	11.3
S77FL-101-13-9	72-87	B3t	0.0	0.6	8.4	46.8	5.8	61.6	3.6	34.8	0.2	1.61	21.9	20.0	14.7
Candler:															
S78FL-101-29-1	0-3	A11	0.0	0.6	26.3	65.9	6.1	98.9	0.6	0.5	19.7	1.59	5.8	3.5	1.3
S78FL-101-29-2	3-9	A12	0.0	0.6	22.8	67.7	6.4	97.5	1.4	1.1	36.0	1.57	4.6	3.0	0.9
S78FL-101-29-3	9-32	A21	0.0	0.6	24.3	66.9	6.3	98.1	0.7	1.2	33.8	1.58	3.6	2.2	0.5
S78FL-101-29-4	32-50	A22	0.0	0.7	26.8	65.6	5.3	98.4	1.0	0.6	46.4	1.54	3.0	1.8	0.3
S78FL-101-29-5	50-82	A23&B	0.1	0.7	23.3	68.0	6.2	98.3	0.9	0.8	30.2	1.55	3.3	2.0	0.4
Candler Variant:															
S78FL-101-28-1	0-4	A11	0.0	0.0	0.8	49.4	47.3	97.5	0.7	1.8	26.4	1.27	11.8	7.2	2.9
S78FL-101-28-2	4-8	A12	0.0	0.1	1.0	63.4	29.7	94.2	4.0	1.8	20.5	1.35	10.3	5.8	2.4
S78FL-101-28-3	8-23	A21	0.0	0.0	1.2	50.8	43.0	95.0	3.4	1.6	15.7	1.49	7.6	3.6	1.2
S78FL-101-28-4	23-45	A22	0.0	0.0	0.9	61.0	33.5	95.4	2.9	1.7	20.7	1.44	6.2	2.5	0.7
S78FL-101-28-5	45-72	A23	0.0	0.0	1.0	57.3	38.2	96.5	2.8	0.7	14.7	1.35	6.6	2.3	0.8
S78FL-101-28-6	72-80	A24&B	0.0	0.0	1.0	51.4	42.0	94.4	4.6	1.0	14.0	1.48	6.8	2.4	0.7
Felda:															
S77FL-101-7-1	0-4	A1	0.1	0.3	5.0	75.5	15.6	96.5	1.0	2.5	---	---	---	---	---
S77FL-101-7-2	4-10	A21	0.1	0.1	3.7	67.0	25.7	96.6	2.7	0.7	22.3	1.55	12.1	5.6	1.5
S77FL-101-7-3	10-23	A22	0.1	0.3	3.6	63.4	24.5	91.9	5.4	2.7	11.5	1.60	13.8	8.2	3.1
S77FL-101-7-4	23-27	B21tg	0.2	1.0	3.0	48.5	20.1	72.8	5.5	21.7	3.2	1.36	28.2	26.2	12.7
S77FL-101-7-5	27-35	B22tg	0.2	0.8	2.0	39.6	22.9	65.5	17.3	17.2	2.1	1.50	24.8	23.4	11.3
S77FL-101-7-6	35-41	B31tg	0.2	0.1	1.8	59.0	23.3	84.4	3.0	12.6	---	---	---	---	---
S77FL-101-7-7	41-47	B32g	0.0	0.1	1.5	61.0	24.7	81.3	1.5	11.2	---	---	---	---	---
S77FL-101-7-8	47-80	Cg	0.1	0.1	2.7	71.0	24.8	98.7	0.3	1.0	---	---	---	---	---

See footnote at end of table.

TABLE 18.--PHYSICAL ANALYSES OF SELECTED SOILS--Continued

Soil series and sample numbers	Depth	Horizon	Class and particle-size distribution (Percent less than 2 mm)								Hydraulic conductivity (saturated)	Bulk density (field moisture)	Water content		
			Sand						Silt (0.05-0.002)	Clay (< 0.002)			1/10 bar	1/3 bar	15 bar
			Very coarse (2.0-1.0)	Coarse (1.0-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	Total (2.0-0.05)							
	In										Cm/hr	G/cm^3	-----Pct (wt)----		
Flemington Variant:															
S78FL-101-19-1	0-5	Ap	0.0	0.7	8.5	56.8	23.9	89.9	5.2	4.9	7.4	1.43	13.0	8.0	4.9
S78FL-101-19-2	5-11	B21tg	0.0	0.4	3.8	26.2	14.0	44.4	14.7	40.9	0.4	1.29	35.8	33.2	31.5
S78FL-101-19-3	11-27	B22tg	0.0	0.4	2.6	22.2	12.6	37.8	12.8	49.4	0.1	1.25	45.2	41.9	41.3
S78FL-101-19-4	27-46	B23tg	0.0	0.2	2.2	21.8	12.8	37.0	13.6	49.4	0.1	1.27	43.5	42.0	39.8
S78FL-101-19-5	46-63	B24tg	0.0	0.2	1.4	20.4	11.6	33.6	13.9	52.2	<0.1	1.33	38.7	36.3	34.8
S78FL-101-19-6	63-80	B3g	0.0	0.1	20.8	11.6	1.6	34.1	15.3	50.6	<0.1	1.44	34.6	33.5	---
Homosassa:															
S77FL-101-16-1	3-0	Oa	0.0	0.5	3.5	41.2	9.8	55.0	6.1	38.9	---	---	---	---	---
S77FL-101-16-2	0-15	A1	0.0	0.9	4.9	52.7	8.8	67.3	12.3	20.4	---	---	---	---	---
S77FL-101-16-3	15-22	C1	0.1	1.5	9.9	77.1	7.7	96.3	2.1	1.6	---	---	---	---	---
S77FL-101-16-4	22-31	C2	0.1	1.5	8.7	78.8	7.7	96.8	1.7	1.5	---	---	---	---	---
S77FL-101-16-5	31-40	C3	0.1	1.5	9.2	77.0	9.0	96.8	1.8	1.4	---	---	---	---	---
Immokalee:															
S79FL-101-35-1	0-4	A1	0.0	1.4	21.7	65.6	7.1	95.8	2.9	1.3	---	---	---	---	---
S79FL-101-35-2	4-16	A21	0.0	1.2	18.0	69.5	9.0	97.7	1.6	0.7	---	---	---	---	---
S79FL-101-35-3	16-33	A22	0.0	1.3	19.3	68.8	8.2	97.6	2.0	0.4	---	---	---	---	---
S79FL-101-35-4	33-37	B21h	0.0	1.1	18.8	65.9	8.5	94.3	2.5	3.2	---	---	---	---	---
S79FL-101-35-5	37-45	B22h	0.0	1.0	17.8	68.0	9.7	96.5	2.3	1.2	---	---	---	---	---
S79FL-101-35-6	45-62	B3	0.0	1.2	17.3	69.8	9.2	97.5	1.5	1.0	---	---	---	---	---
S79FL-101-35-7	62-80	C	0.0	1.2	16.4	72.0	8.8	98.4	1.0	0.6	---	---	---	---	---
Kendrick:															
S77FL-101-14-1	0-7	Ap	0.0	0.4	9.3	76.3	12.6	98.6	0.0	1.4	14.9	1.55	8.1	5.4	2.4
S77FL-101-14-2	7-14	A31	0.0	0.6	9.6	72.4	12.0	94.6	1.8	3.6	21.9	1.43	8.0	4.6	2.2
S77FL-101-14-3	14-22	A32	0.0	0.4	9.4	70.2	12.8	92.8	2.5	4.7	16.7	1.63	8.0	4.8	2.1
S77FL-101-14-4	22-28	A33	0.0	0.5	9.1	70.4	12.0	92.0	2.3	5.7	12.2	1.62	6.6	4.3	2.0
S77FL-101-14-5	28-32	B21t	0.0	0.8	7.6	52.6	11.2	72.2	2.0	25.8	1.2	1.60	17.3	15.5	11.2
S77FL-101-14-6	32-46	B22t	0.0	0.4	8.8	49.2	8.8	67.2	2.1	30.7	0.4	1.71	15.9	13.9	10.6
S77FL-101-14-7	46-73	B23t	0.0	0.6	11.2	49.4	7.6	68.8	1.1	30.1	0.3	1.74	16.8	15.0	11.5
S77FL-101-14-8	73-80	Cg	0.0	0.6	11.2	57.2	8.2	77.2	1.2	21.6	0.2	1.78	16.4	14.9	11.7
Lake:															
S78FL-101-31-1	0-8	Ap	0.0	1.0	20.0	69.3	6.2	96.5	0.9	2.6	---	---	---	---	---
S78FL-101-31-2	8-28	C1	0.0	0.7	15.4	70.7	6.4	93.2	3.4	3.4	---	---	---	---	---
S78FL-101-31-3	28-40	C2	0.0	1.0	18.4	70.0	4.8	94.2	2.5	3.3	---	---	---	---	---
S78FL-101-31-4	40-60	C2	0.0	1.0	15.2	72.0	5.8	94.0	2.7	3.3	---	---	---	---	---
S78FL-101-31-5	60-80	C3	0.0	0.8	15.2	71.6	6.4	94.0	2.8	3.2	---	---	---	---	---
Lochloosa*:															
S78FL-101-20-1	0-6	Ap	0.0	1.7	15.5	55.0	19.7	91.9	5.3	2.8	8.0	1.50	11.5	7.0	2.7
S78FL-101-20-2	6-11	A21	0.0	1.7	16.1	53.8	19.5	91.1	6.5	2.4	8.2	1.59	9.0	5.8	1.5
S78FL-101-20-3	11-17	A22	0.0	1.9	14.7	54.9	19.6	91.1	5.4	3.5	5.8	1.62	8.3	5.2	1.5
S78FL-101-20-4	17-24	A23	0.1	3.1	17.4	51.7	19.0	91.3	4.7	4.0	5.1	1.68	7.4	4.3	1.7
S78FL-101-20-5	24-34	B21t	0.2	3.0	13.4	38.0	17.8	72.4	5.8	21.8	2.6	1.52	23.0	20.9	12.9
S78FL-101-20-6	34-51	B22tg	0.0	3.2	15.6	35.2	12.4	66.4	7.0	26.6	0.1	1.74	18.3	17.1	11.5
S78FL-101-20-7	51-73	B3	0.2	4.8	21.6	38.0	11.8	76.4	4.0	19.6	0.1	1.74	19.9	18.7	13.0
S78FL-101-20-8	73-90	C	0.4	17.6	29.0	30.4	3.6	81.0	0.0	19.0	0.2	1.83	15.6	14.4	10.1

See footnote at end of table.

TABLE 18.--PHYSICAL ANALYSES OF SELECTED SOILS--Continued

Soil series and sample numbers	Depth	Horizon	Class and particle-size distribution (Percent less than 2 mm)								Hydraulic conductivity (saturated)	Bulk density (field moisture)	Water content		
			Sand						Silt (0.05-0.002)	Clay (< 0.002)			1/10 bar	1/3 bar	15 bar
			Very coarse (2.0-1.0)	Coarse (1.0-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	Total (2.0-0.05)							
	In										Cm/hr	G/cm^3	-----Pct (wt)----		
Micanopy*:															
S78FL-101-17-1	0-6	Ap	0.0	0.5	7.1	56.8	24.5	88.9	5.2	5.9	3.7	1.50	17.2	11.3	4.4
S78FL-101-17-2	6-9	A2	0.1	0.7	7.7	59.5	22.0	90.0	6.5	3.5	4.6	1.55	11.7	6.8	2.8
S78FL-101-17-3	9-15	B21t	0.0	0.4	4.6	34.4	17.0	56.4	9.2	34.4	2.5	1.40	26.9	24.2	18.6
S78FL-101-17-4	15-30	B22tg	0.0	0.2	2.6	20.6	11.8	35.2	9.8	55.0	<0.1	1.26	40.9	40.0	33.2
S78FL-101-17-5	30-44	B22tg	0.2	0.4	3.2	27.8	15.0	46.6	10.1	43.3	<0.1	1.59	29.1	29.0	24.0
S78FL-101-17-6	44-58	B23tg	0.2	0.4	3.6	35.8	20.4	60.4	8.4	31.2	<0.1	1.62	26.5	25.4	22.1
S78FL-101-17-7	58-69	B24tg	0.0	0.2	2.0	36.6	14.6	53.4	11.6	35.0	<0.1	1.57	29.0	27.3	24.3
S78FL-101-17-8	69-89	B3g	0.0	0.2	2.2	39.8	13.2	55.4	12.0	32.6	<0.1	1.50	31.8	30.3	36.6
Millhopper:															
S78FL-101-24-1	0-3	A11	0.0	0.5	14.6	48.2	30.5	93.8	4.6	1.6	27.6	1.36	9.5	5.6	2.2
S78FL-101-24-2	3-7	A12	0.0	0.5	14.5	47.1	31.8	93.9	4.9	1.2	23.9	1.42	8.3	4.4	1.8
S78FL-101-24-3	7-27	A21	0.0	0.5	12.8	47.8	31.5	94.6	4.3	1.1	17.0	1.47	6.6	2.8	1.1
S78FL-101-24-4	27-42	A22	0.0	0.4	11.8	53.9	29.4	95.5	3.6	0.9	17.7	1.41	6.4	2.5	0.6
S78FL-101-24-5	42-59	A23	0.0	0.6	12.0	50.8	29.0	92.4	6.8	0.8	11.3	1.57	7.0	2.4	0.6
S78FL-101-24-6	59-64	B21t	0.0	0.4	10.2	34.2	31.6	76.4	7.0	16.6	0.3	1.72	17.2	13.9	8.8
S78FL-101-24-7	64-80	B22tg	0.0	0.4	7.2	29.2	29.6	66.4	5.6	28.0	<0.1	1.83	17.7	17.0	12.0
Narcoossee:															
S77FL-101-1-1	0-3	A1	0.1	0.1	2.2	62.9	31.5	96.8	0.9	2.3	28.3	1.24	14.6	8.5	2.8
S77FL-101-1-2	3-9	A2	0.0	0.1	1.8	60.1	33.0	95.0	4.0	1.0	20.4	1.35	10.9	5.9	1.9
S77FL-101-1-3	9-12	Bh	0.0	0.1	1.9	70.8	22.4	95.2	2.9	1.9	9.8	1.48	12.6	6.5	1.4
S77FL-101-1-4	12-18	B3	0.0	0.1	1.9	60.7	32.7	95.4	2.9	1.7	9.9	1.48	11.6	5.8	1.2
S77FL-101-1-5	18-28	C1	0.0	0.1	1.7	70.2	24.0	96.0	2.7	1.3	13.1	1.55	11.1	5.2	0.8
S77FL-101-1-6	28-37	C2	0.0	0.1	1.6	62.9	31.4	96.0	2.6	1.4	11.8	1.62	10.1	3.9	0.7
S77FL-101-1-7	37-62	C3	0.0	0.1	1.9	62.7	31.2	95.9	2.1	2.0	9.8	1.63	12.1	5.1	1.1
S77FL-101-1-8	62-75	C4	0.0	0.1	1.7	64.4	31.5	97.7	2.0	0.3	---	---	---	---	---
Newnan:															
S77FL-101-10-1	0-5	A1	0.0	2.4	10.7	67.9	15.2	96.2	2.7	1.1	20.4	1.39	9.2	5.6	3.1
S77FL-101-10-2	5-22	A2	0.0	0.7	10.7	67.5	17.6	96.5	2.9	0.6	11.8	1.41	13.0	9.6	3.7
S77FL-101-10-3	22-26	B21h	0.0	0.6	9.1	63.4	18.7	91.8	3.6	4.4	21.0	1.45	5.8	3.5	1.4
S77FL-101-10-4	26-33	B22h	0.0	0.6	9.5	68.2	13.7	92.0	4.1	3.9	19.7	1.37	13.7	10.8	1.5
S77FL-101-10-5	33-38	B3	0.0	0.8	8.6	65.8	18.2	93.4	3.4	3.2	11.0	1.57	9.6	5.8	1.8
S77FL-101-10-6	38-44	A'2	0.0	0.7	8.3	63.4	19.6	92.0	2.9	5.1	10.9	1.52	9.9	6.2	2.5
S77FL-101-10-7	44-70	B'21t	0.0	0.4	5.2	54.8	8.4	68.8	3.6	27.6	1.1	1.65	20.1	18.8	13.9
S77FL-101-10-8	70-80	B'22t	0.0	0.4	7.8	67.6	1.2	77.0	2.8	20.2	1.8	1.61	21.0	19.0	11.5
Nobleton:															
S78FL-101-18-1	0-6	Ap	0.0	0.8	8.5	58.8	24.4	92.5	3.8	3.7	60.8	1.27	12.0	7.0	3.2
S78FL-101-18-2	6-17	A21	0.0	0.8	10.5	58.1	19.1	88.5	8.2	3.3	14.1	1.53	9.7	4.9	2.1
S78FL-101-18-3	17-27	A22	0.1	1.3	9.1	56.2	23.0	89.7	5.1	5.2	8.2	1.60	8.9	5.3	3.3
S78FL-101-18-4	27-31	B1	0.2	1.4	8.8	50.6	24.4	85.4	5.6	9.0	4.9	1.61	10.4	6.8	4.5
S78FL-101-18-5	31-38	B21t	0.0	1.4	56.8	12.4	2.2	72.8	5.0	22.2	<0.1	1.78	18.5	16.7	13.5
S78FL-101-18-6	38-69	B22t	0.0	0.4	6.2	32.8	15.2	54.6	6.7	38.7	0.1	1.73	20.3	18.7	14.0
S78FL-101-18-7	69-80	B22t	0.0	0.4	5.2	28.4	14.0	48.0	7.3	44.7	<0.1	1.54	29.5	28.8	21.3
S78FL-101-18-8	80-96	Cg	0.0	0.4	4.6	33.2	16.8	55.0	7.6	37.4	<0.1	1.51	30.4	28.5	23.6

See footnote at end of table.

TABLE 18.--PHYSICAL ANALYSES OF SELECTED SOILS--Continued

Soil series and sample numbers	Depth	Horizon	Class and particle-size distribution (Percent less than 2 mm)								Hydraulic conductivity (saturated)	Bulk density (field moisture)	Water content		
			Sand						Silt (0.05-0.002)	Clay (< 0.002)			1/10 bar	1/3 bar	15 bar
			Very coarse (2.0-1.0)	Coarse (1.0 0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	Total (2.0-0.05)							
	In										Cm/hr	G/cm^3	Pct (wt)		
Orlando:															
S79FL-101-36-1	0-9	Ap	0.0	1.0	16.8	67.5	6.3	91.6	3.3	5.1	---	---	---	---	---
S79FL-101-36-2	9-21	A12	0.0	0.8	15.7	66.7	6.3	89.5	5.9	4.6	---	---	---	---	---
S79FL-101-36-3	21-31	A&C	0.0	1.0	17.5	67.2	5.1	90.8	4.8	4.4	---	---	---	---	---
S79FL-101-36-4	31-45	C1	0.0	1.0	14.3	69.8	6.2	91.3	4.0	4.7	---	---	---	---	---
S79FL-101-36-5	45-68	C2	0.0	1.0	15.7	69.3	5.8	91.8	4.0	4.2	---	---	---	---	---
S79FL-101-36-6	68-80	C3	0.0	1.0	17.5	68.1	5.3	91.9	3.7	4.4	---	---	---	---	---
Pineda:															
S79FL-101-37-1	0-4	A11	0.0	0.0	0.4	30.0	33.9	84.3	7.5	8.2	---	---	---	---	---
S79FL-101-37-2	4-7	A21	0.0	0.1	1.3	50.3	45.1	96.8	2.9	0.3	---	---	---	---	---
S79FL-101-37-3	7-21	A22	0.0	0.1	3.0	59.8	34.3	97.2	2.4	0.4	---	---	---	---	---
S79FL-101-37-4	21-31	B21ir	0.0	0.1	3.0	67.6	25.1	95.8	2.8	1.4	---	---	---	---	---
S79FL-101-37-5	31-36	B22ir	0.0	0.1	3.2	65.1	26.2	94.6	3.0	2.4	---	---	---	---	---
S79FL-101-37-6	36-39	A'2	0.0	0.1	2.5	60.9	31.6	95.1	3.3	1.6	---	---	---	---	---
S79FL-101-37-7	39-57	B'21tg	0.0	0.1	2.3	49.5	23.8	75.7	4.9	19.4	---	---	---	---	---
S79FL-101-37-8	57-72	B'22tg	0.0	0.1	2.3	48.8	20.3	71.5	3.8	24.7	---	---	---	---	---
S79FL-101-37-9	72-80	Cg	0.0	0.1	4.6	57.8	13.7	76.2	1.7	22.1	---	---	---	---	---
Pomello:															
S79FL-101-32-1	0-3	A11	0.0	0.7	19.2	57.5	17.3	94.7	4.3	1.0	---	---	---	---	---
S79FL-101-32-2	3-6	A12	0.0	0.6	17.7	62.5	17.0	96.8	1.9	0.3	---	---	---	---	---
S79FL-101-32-3	6-32	A2	0.0	0.6	19.0	61.1	17.8	98.5	0.9	0.6	---	---	---	---	---
S79FL-101-32-4	32-36	B21h	0.0	0.7	18.0	60.1	13.8	92.6	2.4	5.0	---	---	---	---	---
S79FL-101-32-5	36-41	B22h	0.0	0.7	15.7	61.9	16.9	95.2	2.2	2.6	---	---	---	---	---
S79FL-101-32-6	41-54	B23h	0.0	0.7	19.0	62.0	15.2	96.9	2.0	1.1	---	---	---	---	---
S79FL-101-32-7	54-80	B3	0.0	0.8	18.7	64.9	13.3	97.7	1.5	0.8	---	---	---	---	---
Pomona:															
S77FL-101-3-1	0-6	A1	0.0	0.1	3.3	67.9	24.0	95.3	2.2	2.5	32.2	1.26	16.0	9.0	3.4
S77FL-101-3-2	6-13	A21	0.1	0.1	3.3	67.8	24.8	96.1	3.9	0.0	19.7	1.50	7.7	3.1	1.2
S77FL-101-3-3	13-22	A22	0.0	0.1	3.4	70.8	21.9	96.2	3.1	0.7	13.6	1.59	6.9	2.5	1.0
S77FL-101-3-4	22-26	B21h	0.1	0.1	3.3	65.4	21.6	90.5	5.5	4.0	2.4	1.44	21.2	14.4	3.0
S77FL-101-3-5	26-32	B22h	0.1	0.1	3.2	65.5	23.9	92.8	4.1	3.1	2.6	1.42	20.0	13.4	2.5
S77FL-101-3-6	32-36	B3	0.1	0.1	3.4	72.0	20.5	96.1	2.6	1.3	7.0	1.61	11.4	4.5	0.6
S77FL-101-3-7	36-51	A'2	0.1	0.1	3.3	68.4	24.3	96.2	2.7	1.1	7.0	1.70	8.9	3.7	0.5
S77FL-101-3-8	51-52	B'1h	0.0	0.1	3.5	63.0	25.3	91.9	4.3	3.8	---	---	---	---	---
S77FL-101-3-9	52-60	B'2tg	0.0	0.2	2.8	47.0	21.6	71.6	12.2	16.2	2.6	1.76	1.91	17.4	6.0
S77FL-101-3-10	60-80	Cg	0.0	0.0	2.8	59.4	20.4	82.6	7.2	10.2	---	---	---	---	---
Samsula:															
S78FL-101-27-1	0-3	Oa1	---	---	---	---	---	---	---	---	8.3	0.23	323.1	275.1	67.9
S78FL-101-27-2	3-24	Oa2	---	---	---	---	---	---	---	---	---	0.11	471.2	350.9	64.6
S78FL-101-27-3	24-32	Oa3	---	---	---	---	---	---	---	---	11.1	0.17	458.9	390.0	32.4
S78FL-101-27-4	32-35	Oa4	---	---	---	---	---	---	---	---	13.9	0.27	285.2	200.9	27.0
S78FL-101-27-5	35-39	IIA1b	0.0	1.2	18.9	72.0	4.5	96.6	1.8	1.6	6.1	1.50	13.4	8.1	1.7
S78FL-101-27-6	29-45	IIC1b	0.0	1.1	21.0	69.8	4.3	96.2	1.6	2.2	20.1	1.51	7.0	4.3	1.2
S78FL-101-27-7	45-80	IIC2b	0.0	1.1	18.3	71.6	5.1	96.1	1.7	2.2	32.1	1.61	4.6	2.7	1.1

See footnote at end of table.

TABLE 18.--PHYSICAL ANALYSES OF SELECTED SOILS--Continued

Soil series and sample numbers	Depth	Horizon	Class and particle-size distribution (Percent less than 2 mm)								Hydraulic conductivity (saturated)	Bulk density (field moisture)	Water content		
			Sand												
			Very coarse (2.0-1.0)	Coarse (1.0 0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	Total (2.0-0.05)	Silt (0.05-0.002)	Clay (< 0.002)			1/10 bar	1/3 bar	15 bar
	In										Cm/hr	G/cm^3	-----Pct (wt)----		
Sellers:															
S77FL-101-4-1	0-9	A11	0.0	0.1	3.1	53.9	27.9	85.0	8.5	6.5	---	---	---	---	---
S77FL-101-4-2	9-20	A12	0.0	0.2	3.4	64.3	24.0	91.9	5.2	2.9	---	---	---	---	---
S77FL-101-4-3	20-24	A13	0.0	0.1	3.5	62.5	28.0	94.1	2.9	3.0	---	---	---	---	---
S77FL-101-4-4	24-34	C1	0.0	0.1	3.4	61.5	30.7	95.7	2.6	1.7	---	---	---	---	---
S77FL-101-4-5	34-48	C2	0.0	0.2	3.2	64.4	27.4	95.2	1.8	3.0	---	---	---	---	---
S77FL-101-4-6	48-80	C3	0.0	0.1	3.2	63.2	30.0	96.5	2.1	1.4	---	---	---	---	---
Smyrna:															
S78FL-101-23-1	0-3	A11	0.0	0.6	21.5	50.6	20.5	93.2	5.1	1.7	45.1	1.12	21.1	14.6	8.2
S78FL-101-23-2	3-5	A12	0.0	0.5	19.5	53.5	19.5	93.0	6.2	0.8	29.6	1.37	11.8	7.1	3.6
S78FL-101-23-3	5-10	A2	0.0	0.5	20.3	53.3	21.5	95.6	3.6	0.8	13.8	1.46	9.4	5.3	2.5
S78FL-101-23-4	10-13	B1	0.0	0.5	19.1	52.6	23.3	95.5	3.2	1.3	25.5	1.40	7.3	4.1	1.5
S78FL-101-23-5	13-16	B21h	0.0	0.6	21.4	50.8	20.3	93.1	3.0	3.9	18.2	1.28	16.7	11.1	3.6
S78FL-101-23-6	16-25	B22h	0.0	0.6	18.7	55.9	19.2	94.4	3.2	2.4	22.7	1.38	10.9	7.0	2.2
S78FL-101-23-7	25-35	B3&Bh	0.0	0.5	17.6	55.4	21.6	95.1	3.0	1.9	18.2	1.50	7.6	4.3	1.3
S78FL-101-23-8	35-50	C1	0.0	0.6	18.5	55.0	22.0	96.1	2.5	1.4	24.5	1.60	5.1	2.6	0.8
S78FL-101-23-9	50-80	C2	0.0	0.6	21.5	55.3	19.7	97.1	2.0	0.9	22.8	1.59	4.6	2.0	0.6
Sparr:															
S77FL-101-12-1	0-6	Ap	0.0	0.5	12.7	75.4	10.9	99.5	0.0	0.5	7.4	1.61	8.2	5.0	2.4
S77FL-101-12-2	6-11	A21	0.0	0.6	12.7	71.4	9.9	94.6	3.1	2.3	15.8	1.55	7.2	4.7	1.7
S77FL-101-12-3	11-16	A22	0.0	0.6	12.8	72.1	9.5	95.0	2.7	2.3	28.0	1.39	7.3	4.7	1.6
S77FL-101-12-4	16-35	A23	0.0	0.7	12.3	72.2	10.3	95.5	2.3	2.2	27.6	1.53	6.1	4.1	1.2
S77FL-101-12-5	35-43	A24	0.0	0.7	11.9	71.6	10.3	94.5	2.2	3.3	17.5	1.53	7.1	4.2	1.4
S77FL-101-12-6	43-48	B21t	0.0	0.6	9.4	54.4	9.2	73.6	4.3	22.1	0.3	1.70	19.4	14.1	10.0
S77FL-101-12-7	48-59	B22t	0.0	0.6	8.6	46.6	6.6	62.4	4.3	33.3	0.1	1.64	21.6	19.5	14.9
S77FL-101-12-8	59-80	B23t	0.0	0.4	8.8	48.3	5.8	63.3	3.4	33.3	0.2	1.74	18.5	17.0	13.0
Tavares:															
S78FL-101-22-1	0-3	A1	0.0	0.2	35.7	41.7	16.3	93.9	4.1	2.0	23.9	1.52	8.0	4.6	2.0
S78FL-101-22-2	3-9	C1	0.0	1.7	32.1	44.2	17.1	95.1	3.3	1.6	25.4	1.59	6.2	3.2	1.2
S78FL-101-22-3	9-34	C2	0.0	1.9	34.6	42.7	17.3	96.5	1.9	1.6	35.9	1.56	4.5	2.9	0.8
S78FL-101-22-4	34-56	C3	0.0	2.2	32.9	43.8	17.2	96.1	2.2	1.7	33.3	1.61	3.8	1.9	0.7
S78FL-101-22-5	56-76	C4	0.1	2.7	34.5	44.5	15.3	97.1	1.5	1.4	25.2	1.58	6.2	3.5	0.6
S78FL-101-22-6	76-86	C5	0.1	2.7	33.3	44.1	17.2	97.4	1.4	1.2	26.9	1.61	3.9	2.3	0.4
Vero:															
S77FL-101-2-1	0-6	A1	0.0	0.1	3.7	62.7	25.2	91.7	3.0	5.3	9.9	1.12	35.1	21.5	4.9
S77FL-101-2-2	6-11	A21	0.0	0.1	4.8	61.7	28.4	95.0	5.0	0.0	7.2	1.52	10.1	4.9	1.5
S77FL-101-2-3	11-23	A22	0.0	0.2	4.2	64.1	27.3	95.8	3.7	0.5	13.1	1.57	7.9	2.9	0.8
S77FL-101-2-4	23-27	B21h	0.0	0.2	3.9	63.8	21.6	89.5	6.7	3.8	2.6	1.68	13.2	8.8	2.8
S77FL-101-2-5	27-30	B22h	0.0	0.1	3.6	57.1	30.4	91.2	5.4	3.4	8.5	1.60	14.1	7.9	1.8
S77FL-101-2-6	30-35	B21tg	0.0	0.1	2.9	39.9	24.7	67.6	6.2	26.2	0.3	1.51	27.8	26.5	13.7
S77FL-101-2-7	35-44	B22tg	0.0	0.1	3.4	46.6	22.3	72.4	6.4	21.2	0.6	1.67	20.7	18.6	9.5
S77FL-101-2-8	44-51	B3g	0.0	0.1	3.4	53.3	25.1	81.9	5.1	13.0	0.2	1.71	19.4	17.0	7.6
S77FL-101-2-9	51-66	C1g	0.4	1.4	4.2	47.6	26.4	80.0	6.3	13.7	---	---	---	---	---
S77FL-101-2-10	66-80	C2g	0.0	0.2	2.4	50.0	21.2	73.8	4.0	22.2	---	---	---	---	---

See footnote at end of table.

TABLE 18.--PHYSICAL ANALYSES OF SELECTED SOILS--Continued

Soil series and sample numbers	Depth	Horizon	Class and particle-size distribution (Percent less than 2 mm)								Hydraulic conductivity (saturated)	Bulk density (field moisture)	Water content		
			Sand						Silt (0.05-0.002)	Clay (< 0.002)			1/10 bar	1/3 bar	15 bar
			Very coarse (2.0-1.0)	Coarse (1.0 0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	Total (2.0-0.05)							
	In										Cm/hr	G/cm^3	-----Pct (wt)----		
Wauchula*:															
S77FL-101-5-1	0-5	A11	0.0	0.1	4.7	66.0	24.5	95.3	1.9	2.8	4.4	1.37	19.1	10.6	3.1
S77FL-101-5-2	5-8	A12	0.0	0.2	4.3	61.3	28.0	93.8	4.8	1.4	9.2	1.48	12.4	6.1	2.2
S77FL-101-5-3	8-12	A21	0.0	0.2	4.8	66.9	24.2	96.1	2.5	1.4	9.6	1.58	9.2	4.0	1.0
S77FL--01-5-4	12-19	A22	0.0	0.2	4.3	60.5	22.8	87.8	6.3	5.9	11.0	1.59	7.6	2.6	0.7
S77FL-101-5-5	19-23	B21h	0.1	0.1	3.6	60.5	23.6	87.9	8.3	3.8	12.7	1.40	27.1	21.6	6.5
S77FL-101-5-6	23-26	B22h	0.0	0.1	4.3	61.0	25.7	91.1	6.0	2.9	14.9	1.44	17.4	11.0	4.1
S77FL-101-5-7	26-31	B3	0.0	0.2	4.1	64.5	24.2	93.0	5.3	1.7	10.1	1.56	13.3	6.6	2.0
S77FL-101-5-8	31-34	A'2	0.0	0.1	4.1	65.0	23.8	93.0	3.6	3.4	8.8	1.63	13.0	5.9	1.9
S77FL-101-5-9	34-36	B'21tg	0.0	0.1	3.0	52.7	19.8	75.6	3.8	20.6	0.6	1.68	19.2	16.2	7.1
S77FL-101-5-10	36-57	B'22tg	0.0	0.1	3.0	42.0	19.4	64.6	2.9	32.5	0.5	1.61	21.9	20.8	12.9
S77FL-101-5-11	57-80	B'23tg	0.0	0.1	2.5	37.4	22.1	62.1	4.2	33.7	0.5	1.78	16.3	13.9	8.4
Weekiwachee:															
S77FL-101-15-1	0-8	Oa1	---	---	---	---	---	---	---	---	---	---	---	---	---
S77FL-101-15-2	8-16	Oa2	---	---	---	---	---	---	---	---	---	---	---	---	---
S77FL-101-15-3	16-31	Oa3	---	---	---	---	---	---	---	---	---	---	---	---	---
S77FL-101-15-4	31-39	IIC	0.1	1.0	7.4	70.7	10.2	89.4	6.6	4.0	---	---	---	---	---
Zephyr:															
S77FL-101-6-1	13-6	Oa1	0.0	0.2	2.9	54.6	36.3	94.0	1.8	4.2	238.0	0.47	137.2	117.6	31.4
S77FL-101-6-2	6-0	Oa2	0.0	0.1	3.3	65.3	18.5	83.8	7.5	8.7	88.1	0.51	134.2	120.1	24.8
S77FL-101-6-3	0-10	A1&A2	0.0	0.1	3.1	63.2	29.3	95.7	3.1	1.2	8.2	1.61	11.4	5.8	1.3
S77FL-101-6-4	10-18	A3	0.0	0.1	3.2	63.0	28.3	94.6	3.1	2.3	9.2	1.59	12.5	5.8	1.2
S77FL-101-6-5	18-33	B21tg	0.0	0.1	2.2	43.0	26.6	71.4	6.7	21.9	0.3	1.61	24.0	22.9	11.7
S77FL-101-6-6	33-39	B22tg	0.0	0.1	2.4	43.1	25.8	72.0	5.8	22.2	0.1	1.64	22.9	22.0	12.3
S77FL-101-6-7	39-48	B23tg	0.0	0.1	2.3	44.4	27.0	73.8	5.4	20.8	0.2	1.62	22.6	21.8	11.6
S77FL-101-6-8	48-58	B3g	0.0	0.1	2.2	52.3	27.6	82.2	4.1	13.7	0.2	1.76	17.1	13.8	5.2
S77FL-101-6-9	58-67	Cg	0.0	0.1	2.0	60.1	24.2	86.4	4.3	9.3	0.3	1.70	19.8	15.7	4.1
Zolfo:															
S79FL-101-33-1	0-3	Ap	0.0	0.1	1.0	70.9	25.3	97.3	1.4	1.3	---	---	---	---	---
S79FL-101-33-2	3-11	A21	0.0	0.3	1.6	71.5	23.9	97.1	1.3	1.6	---	---	---	---	---
S79FL-101-33-3	11-21	A22	0.0	0.2	1.3	70.6	25.2	97.3	1.7	1.0	---	---	---	---	---
S79FL-101-33-4	21-32	A23	0.0	0.1	0.8	75.6	20.7	97.2	1.9	0.8	---	---	---	---	---
S79FL-101-33-5	32-51	A24	0.0	0.1	0.9	73.5	23.1	97.6	1.4	1.0	---	---	---	---	---
S79FL-101-33-6	51-65	A25	0.0	0.0	0.6	71.9	25.0	97.5	1.4	1.1	---	---	---	---	---
S79FL-101-33-7	65-80	B21h	0.0	0.1	0.7	75.9	18.4	95.1	3.5	1.4	---	---	---	---	---

*The soil is a taxadjunct to the series. See text for a description of those characteristics of the soil that are outside the range of the series.

TABLE 19.--CHEMICAL ANALYSES OF SELECTED SOILS

Soil name and sample number	Depth	Horizon	Extractable bases					Extractable acidity	Sum of cations	Base saturation	Organic carbon	Electrical conductivity	pH			Pyrophosphate extractable			Citrate dithionite extractable	
			C	Mg	Na	K	Sum						H_2O (1:1)	$CaCl_2$ 0.01M (1:2)	KCl, 1N (1:1)	C	Fe	Al	Al	Fe
			----Milliequivalents/100 grams of soil-----							Pct	Pct	Mmho /cm				Pct	Pct	Pct	Pct	Pct
Adamsville:																				
S78FL-101-21-1	0-3	A11	0.42	0.01	0.08	0.04	0.55	4.35	4.90	13	0.71	0.02	5.0	3.9	3.7	---	---	---	---	---
S78FL-101-21-2	3-8	A12	0.10	0.00	0.07	0.01	0.18	2.62	2.80	6	0.33	0.01	5.2	4.2	4.0	---	---	---	---	---
S78FL-101-21-3	8-23	C1	0.00	0.00	0.07	0.00	0.07	2.67	2.74	3	0.16	0.01	5.4	4.6	4.4	---	---	---	---	---
S78FL-101-21-4	23-40	C2	0.05	0.00	0.07	0.01	0.13	0.89	1.02	13	0.02	0.01	5.4	4.7	4.6	---	---	---	---	---
S78FL-101-21-5	40-57	C2	0.05	0.00	0.07	0.01	0.13	1.03	1.16	11	0.03	0.01	5.3	4.8	4.6	---	---	---	---	---
S78FL-101-21-6	57-80	C3	0.05	0.00	0.08	0.10	0.23	0.55	0.78	29	0.03	0.18	5.7	5.1	5.0	---	---	---	---	---
Aripeka:																				
S78FL-101-30-1	0-2	A11	1.35	0.32	0.00	0.07	1.74	7.88	9.62	18	2.92	0.10	4.3	4.0	3.8	---	---	---	---	---
S78FL-101-30-2	2-9	A12	0.37	0.04	0.00	0.01	0.42	1.19	1.61	26	0.53	0.03	4.9	4.6	4.5	---	---	---	---	---
S78FL-101-30-3	9-12	A2	0.13	0.02	0.00	0.00	0.15	0.26	0.41	37	0.15	0.02	5.3	5.0	4.8	---	---	---	---	---
S78FL-101-30-4	12-17	B21t	0.67	0.12	0.00	0.01	0.80	1.19	1.99	40	0.43	0.04	5.5	5.3	5.1	---	---	---	0.05	0.17
S78FL-101-30-5	17-23	B22t	1.36	1.44	0.02	0.06	2.88	2.81	5.69	51	0.65	0.15	7.0	6.8	6.9	---	---	---	0.08	0.17
Arredondo*:																				
S77FL-101-13-1	0-5	Ap	1.82	0.84	0.01	0.12	2.79	1.63	4.42	63	0.72	0.03	6.6	5.8	6.1	---	---	---	---	---
S77FL-101-13-2	5-8	A12	0.69	0.31	0.00	0.12	1.12	3.87	4.99	22	0.61	0.03	6.2	5.1	5.1	---	---	---	---	---
S77FL-101-13-3	8-18	A21	0.30	0.07	0.00	0.03	0.40	3.53	3.93	10	0.42	0.03	5.9	4.9	4.5	---	---	---	---	---
S77FL-101-13-4	18-35	A22	0.06	0.01	0.02	0.03	0.12	1.36	1.48	8	0.11	0.02	6.0	4.9	4.6	---	---	---	---	---
S77FL-101-13-5	35-58	A23	0.05	0.02	0.01	0.04	0.12	1.02	1.14	11	0.08	0.03	5.6	4.8	4.5	---	---	---	---	---
S77FL-101-13-6	58-63	B1	0.16	0.04	0.03	0.05	0.28	2.31	2.59	11	0.16	0.05	5.0	4.4	4.3	---	---	---	---	---
S77FL-101-13-7	63-68	B21t	0.22	0.06	0.02	0.08	0.38	4.96	5.34	7	0.15	0.06	4.7	4.2	4.0	---	---	---	0.28	1.18
S77FL-101-13-8	68-72	B22t	0.22	0.07	0.01	0.11	0.41	6.32	6.73	6	0.21	0.08	4.5	4.2	3.9	---	---	---	0.32	1.56
S77FL-101-13-9	72-87	B3t	0.87	0.39	0.01	0.21	1.48	6.05	7.53	20	0.13	0.11	4.7	4.3	3.1	---	---	---	0.39	2.19
Candler:																				
S78FL-101-29-1	0-3	A11	0.58	0.11	0.00	0.02	0.71	1.79	2.50	28	1.13	0.03	5.4	5.1	4.9	---	---	---	---	---
S78FL-101-29-2	3-9	A12	0.19	0.02	0.00	0.01	0.22	1.45	1.67	13	0.66	0.03	5.1	4.9	4.6	---	---	---	---	---
S78FL-101-29-3	9-32	A21	0.00	0.00	0.00	0.01	0.01	0.66	0.67	1	0.12	0.03	4.8	4.8	4.6	---	---	---	---	---
S78FL-101-29-4	32-50	A22	0.00	0.00	0.00	0.00	0.00	0.26	0.26	0	0.06	0.02	4.7	4.6	4.6	---	---	---	---	---
S78FL-101-29-5	50-82	A23&B	0.00	0.00	0.00	0.01	0.01	0.40	0.41	2	0.03	0.03	4.7	4.7	4.6	---	---	---	---	---
Candler Variant:																				
S78FL-101-28-1	0-4	A11	1.06	0.44	0.00	0.04	1.54	5.09	6.63	23	2.73	0.08	4.9	4.5	4.4	---	---	---	---	---
S78FL-101-28-2	4-8	A12	1.08	0.23	0.00	0.04	0.31	4.13	4.44	7	1.98	0.05	5.2	4.8	4.6	---	---	---	---	---
S78FL-101-28-3	8-23	A21	0.60	0.06	0.00	0.01	0.67	1.57	2.24	30	0.66	0.03	5.6	5.4	5.3	---	---	---	---	---
S78FL-101-28-4	23-45	A22	0.37	0.02	0.00	0.01	0.40	0.86	1.26	32	0.30	0.04	5.6	5.5	5.3	---	---	---	---	---
S78FL-101-28-5	45-72	A23	0.09	0.00	0.00	0.00	0.09	0.41	0.50	18	0.25	0.02	5.6	5.5	5.1	---	---	---	---	---
S78FL-101-28-6	72-80	A24&B	0.09	0.02	0.00	0.01	0.12	0.28	0.40	30	0.07	0.01	5.5	5.5	4.9	---	---	---	---	---
Felda:																				
S77FL-101-7-1	0-4	A1	7.34	0.39	0.04	0.07	7.84	0.69	8.53	92	1.25	0.18	7.5	7.1	7.2	---	---	---	---	---
S77FL-101-7-2	4-10	A21	2.49	0.10	0.02	0.00	2.61	0.00	2.61	100	0.27	0.11	8.2	7.2	7.8	---	---	---	---	---
S77FL-101-7-3	10-23	A22	16.57	0.17	0.03	0.00	16.77	0.00	16.77	100	0.15	0.11	8.8	7.6	8.4	---	---	---	---	---
S77FL-101-7-4	23-27	B21tg	25.94	2.46	0.17	0.10	28.67	3.53	32.20	89	0.11	0.30	8.2	7.6	7.2	---	---	---	0.10	0.60
S77FL-101-7-5	27-35	B22tg	25.39	2.26	0.18	0.06	27.89	3.12	31.01	90	0.08	0.30	8.2	7.6	7.3	---	---	---	0.08	0.65
S77FL-101-7-6	35-41	B31tg	15.57	1.25	0.10	0.03	16.95	1.99	18.94	89	0.04	0.22	8.3	7.6	7.4	---	---	---	0.06	0.49
S77FL-101-7-7	41-47	B32g	7.39	0.84	0.06	0.05	8.34	1.95	10.29	81	0.06	0.16	8.5	7.7	7.2	---	---	---	---	---
S77FL-101-7-8	47-80	Cg	0.19	0.02	0.00	0.00	0.21	0.00	0.21	100	0.01	0.05	8.6	7.5	7.4	---	---	---	---	---

See footnote at end of table.

TABLE 19.--CHEMICAL ANALYSES OF SELECTED SOILS--Continued

Soil name and sample number	Depth	Horizon	Extractable bases					Extractable acidity	Sum of cations	Base saturation	Organic carbon	Electrical conductivity	pH			Pyrophosphate extractable			Citrate dithionite extractable	
			C	Mg	Na	K	Sum						H_2O (1:1)	$CaCl_2$ 0.01M (1:2)	KCl, 1N (1:1)	C	Fe	Al	Al	Fe
			----Milliequivalents/100 grams of soil-----							Pct	Pct	Mmho /cm				Pct	Pct	Pct	Pct	Pct
Flemington Variant:																				
S78FL-101-19-1	0-5	Ap	2.97	0.07	0.09	0.06	3.19	5.34	8.53	60	1.44	0.04	6.0	4.7	4.5	---	---	---	---	---
S78FL-101-19-2	5-11	B21tg	9.42	0.02	0.29	0.27	10.00	22.58	32.58	31	0.67	0.04	5.2	4.1	3.6	---	---	---	0.19	0.12
S78FL-101-19-3	11-27	B22tg	11.82	0.01	0.43	0.34	12.60	22.99	35.59	35	0.17	0.04	5.3	4.1	3.5	---	---	---	0.14	0.08
S78FL-101-19-4	27-46	B23tg	13.10	0.76	0.53	0.40	14.79	20.61	35.40	42	0.11	0.04	5.4	4.2	3.6	---	---	---	0.09	0.06
S78FL-101-19-5	46-63	B24tg	13.90	0.95	0.67	0.44	15.96	18.33	34.29	47	0.09	0.06	5.4	4.4	3.7	---	---	---	---	---
S78FL-101-19-6	63-80	B3g	14.60	1.06	0.76	0.47	16.89	15.54	32.43	52	0.02	0.11	6.0	5.2	4.5	---	---	---	---	---
Homosassa:																				
S77FL-101-16-1	3-0	Oa	29.70	4.63	147.02	5.69	187.04	28.53	215.57	87	19.52	156.00	5.5	5.5	5.4	---	---	---	---	---
S77FL-101-16-2	0-15	A11	19.43	2.73	74.16	2.75	99.07	32.08	131.15	76	10.32	68.30	4.9	5.0	4.8	---	---	---	---	---
S77FL-101-16-3	15-22	C1	1.86	2.50	11.47	0.22	16.05	3.96	20.01	80	0.72	9.20	3.7	3.8	3.6	---	---	---	---	---
S77FL-101-16-4	22-31	C2	1.43	2.17	11.80	0.17	15.57	1.83	17.40	89	0.35	6.60	3.7	3.9	3.7	---	---	---	---	---
S77FL-101-16-5	31-40	C3	0.86	1.58	8.51	0.10	11.05	1.62	12.67	87	0.31	4.60	3.5	3.6	3.4	---	---	---	---	---
Immokalee:																				
S79FL-101-35-1	0-4	A1	1.86	0.40	0.06	0.04	2.36	15.98	18.34	13	1.25	0.06	4.2	3.5	3.3	---	---	---	---	---
S79FL-101-35-2	4-16	A21	0.12	0.02	0.01	0.00	0.15	0.90	1.05	14	0.16	0.01	5.1	4.1	4.0	---	---	---	---	---
S79FL-101-35-3	16-33	A22	0.05	0.02	0.01	0.00	0.08	0.34	0.42	19	0.05	0.01	5.4	4.5	4.4	---	---	---	---	---
S79FL-101-35-4	33-37	B21h	0.21	0.03	0.03	0.00	0.27	6.78	7.05	4	0.99	0.02	4.6	4.0	3.6	0.79	0.00	0.10	0.09	0.03
S79FL-101-35-5	37-45	B22h	0.09	0.02	0.01	0.00	0.12	3.87	3.99	3	0.31	0.01	4.8	4.3	4.0	0.24	0.00	0.05	0.03	0.03
S79FL-101-35-6	45-62	B3	0.04	0.01	0.01	0.00	0.06	1.80	1.86	3	0.13	0.01	4.8	4.5	4.3	---	---	---	---	---
S79FL-101-35-7	62-80	C	0.03	0.01	0.01	0.00	0.05	0.52	0.57	9	0.07	0.01	4.8	4.7	4.6	---	---	---	---	---
Kendrick:																				
S77FL-101-14-1	0-7	Ap	1.95	0.80	0.00	0.17	2.92	1.96	4.88	60	0.76	0.06	6.4	5.9	5.9	---	---	---	---	---
S77FL-101-14-2	7-14	A31	1.31	0.20	0.00	0.05	1.56	1.71	3.27	48	0.35	0.03	6.5	5.9	5.9	---	---	---	---	---
S77FL-101-14-3	14-22	A32	0.78	0.17	0.00	0.03	0.98	1.34	2.32	42	0.27	0.03	6.5	5.9	5.9	---	---	---	---	---
S77FL-101-14-4	22-28	A33	0.51	0.20	0.01	0.08	0.80	1.10	1.90	42	0.15	0.03	6.6	5.9	5.9	---	---	---	---	---
S77FL-101-14-5	28-32	B21t	0.72	0.69	0.01	0.13	1.55	3.17	4.72	33	0.27	0.08	5.9	5.5	5.0	---	---	---	0.18	0.69
S77FL-101-14-6	32-46	B22t	0.33	0.39	0.01	0.05	0.78	4.60	5.38	14	0.09	0.07	4.8	4.4	4.0	---	---	---	0.19	0.91
S77FL-101-14-7	46-73	B23t	0.20	0.28	0.01	0.07	0.56	4.16	4.72	12	0.09	0.07	4.6	4.2	3.9	---	---	---	0.12	0.58
S77FL-101-14-8	73-80	Cg	0.10	0.15	0.02	0.03	0.30	2.64	2.94	10	0.05	0.06	4.6	4.2	4.0	---	---	---	---	---
Lake:																				
S78FL-101-31-1	0-8	Ap	1.32	0.41	0.00	0.07	1.80	5.31	7.11	25	2.14	0.09	5.6	5.5	5.1	---	---	---	---	---
S78FL-101-31-2	8-28	C1	0.14	0.02	0.00	0.01	0.17	4.36	4.53	4	0.55	0.05	5.0	5.0	4.7	---	---	---	---	---
S78FL-101-31-3	28-40	C2	0.18	0.03	0.00	0.01	0.22	2.83	3.05	7	0.17	0.05	5.0	4.9	4.8	---	---	---	---	---
S78FL-101-31-4	40-60	C2	0.21	0.04	0.00	0.01	0.26	2.25	2.51	10	0.09	0.05	5.0	5.0	4.8	---	---	---	---	---
S78FL-101-31-5	60-80	C3	0.16	0.11	0.00	0.01	0.28	1.85	2.13	13	0.08	0.06	4.9	4.9	4.7	---	---	---	---	---
Lochloosa*:																				
S78FL-101-20-1	0-6	Ap	1.25	0.02	0.09	0.03	1.39	6.49	7.88	18	1.31	0.03	5.6	4.4	4.0	---	---	---	---	---
S78FL-101-20-2	6-11	A21	0.47	0.05	0.08	0.01	0.61	4.93	5.54	11	0.48	0.02	5.5	4.4	4.2	---	---	---	---	---
S78FL-101-20-3	11-17	A22	0.30	0.01	0.08	0.01	0.40	2.76	3.16	13	0.30	0.02	5.6	4.5	4.2	---	---	---	---	---
S78FL-101-20-4	17-24	A23	0.27	0.01	0.08	0.01	0.37	2.21	2.58	14	0.15	0.02	5.5	4.5	4.3	---	---	---	---	---
S78FL-101-20-5	24-34	B21t	1.50	0.18	0.10	0.05	1.83	7.98	9.81	19	0.17	0.03	5.3	4.2	3.9	---	---	---	0.11	0.17
S78FL-101-20-6	34-51	B22tg	0.47	0.08	0.13	0.08	0.76	10.88	11.64	7	0.09	0.02	5.3	4.0	3.7	---	---	---	0.11	0.14
S78FL-101-20-7	51-73	B3	0.20	0.04	0.10	0.05	0.39	8.29	8.68	4	0.06	0.02	5.1	3.9	3.7	---	---	---	0.07	0.10
S78FL-101-20-8	73-90	C	0.65	0.03	0.09	0.04	0.81	5.28	6.09	13	0.04	0.02	5.0	4.0	3.7	---	---	---	0.05	0.05

See footnote at end of table.

TABLE 19.--CHEMICAL ANALYSES OF SELECTED SOILS--Continued

Soil name and sample number	Depth	Horizon	Extractable bases					Extractable acidity	Sum of cations	Base saturation	Organic carbon	Electrical conductivity	pH			Pyrophosphate extractable			Citrate dithionite extractable	
			C	Mg	Na	K	Sum						H_2O (1:1)	$CaCl_2$ 0.01M (1:2)	KCl, 1N (1:1)	C	Fe	Al	Al	Fe
			----Milliequivalents/100 grams of soil-----							Pct	Pct	Mmho /cm				Pct	Pct	Pct	Pct	Pct
Micanopy*:																				
S78FL-101-17-1	0-6	Ap	4.07	0.07	0.10	0.13	4.37	8.46	12.83	34	2.35	0.11	5.9	4.9	4.5	---	---	---	---	---
S78FL-101-17-2	6-9	A2	7.30	0.02	0.09	0.02	7.43	5.50	12.93	57	1.00	0.03	5.9	4.6	4.3	---	---	---	---	---
S78FL-101-17-3	9-15	B21t	6.20	0.28	0.17	0.17	6.82	13.00	19.82	34	0.63	0.10	5.1	4.2	3.7	---	---	---	0.15	0.26
S78FL-101-17-4	15-30	B22tg	8.65	0.40	0.24	0.28	9.57	21.05	30.62	31	0.44	0.06	5.0	4.2	3.6	---	---	---	0.18	0.22
S78FL-101-17-5	30-44	B22tg	7.15	0.22	0.24	0.20	7.81	16.31	24.12	32	0.21	0.02	5.4	4.1	3.6	---	---	---	0.13	0.28
S78FL-101-17-6	44-58	B23tg	7.30	0.16	0.21	0.61	8.28	12.49	20.77	40	0.11	0.02	5.5	4.1	3.6	---	---	---	0.08	0.13
S78FL-101-17-7	58-69	B24tg	11.75	0.23	0.27	0.17	12.42	15.89	28.31	44	0.12	0.03	5.3	4.2	3.5	---	---	---	0.09	0.14
S78FL-101-17-8	69-89	B3g	13.17	0.24	0.27	0.17	13.85	13.11	26.96	51	0.10	0.02	5.5	4.3	3.6	---	---	---	---	---
Millhopper:																				
S78FL-101-24-1	0-3	A11	0.67	0.01	0.08	0.03	0.79	3.09	3.88	20	0.90	0.03	5.3	4.4	4.1	---	---	---	---	---
S78FL-101-24-2	3-7	A12	0.22	0.00	0.07	0.02	0.31	1.85	2.16	14	0.60	0.02	5.5	4.4	4.2	---	---	---	---	---
S78FL-101-24-3	7-27	A21	0.15	0.00	0.07	0.01	0.23	0.55	0.78	29	0.20	0.01	5.7	4.7	4.5	---	---	---	---	---
S78FL-101-24-4	27-42	A22	0.10	0.00	0.07	0.01	0.18	0.00	0.18	100	0.05	0.01	5.8	4.8	4.6	---	---	---	---	---
S78FL-101-24-5	42-59	A23	0.10	0.00	0.07	0.01	0.18	0.00	0.18	100	0.00	0.01	5.9	5.1	4.9	---	---	---	---	---
S78FL-101-24-6	59-64	B21t	0.30	0.03	0.09	0.04	0.46	3.43	3.89	12	0.11	0.02	5.1	4.1	4.0	---	---	---	0.08	0.10
S78FL-101-24-7	64-80	B22tg	0.15	0.03	0.09	0.03	0.30	10.30	10.60	3	0.04	0.01	5.1	4.0	3.8	---	---	---	0.10	0.11
Narcoossee:																				
S77FL-101-1-1	0-3	A1	0.87	0.19	0.02	0.05	1.13	5.09	6.22	18	1.53	0.08	4.9	3.8	3.6	---	---	---	---	---
S77FL-101-1-2	3-9	A2	0.51	0.03	0.00	0.02	0.56	3.97	4.53	12	0.81	0.04	5.2	4.1	3.9	---	---	---	---	---
S77FL-101-1-3	9-12	Bh	0.64	0.02	0.01	0.01	0.68	5.70	6.38	11	0.87	0.04	5.7	4.7	4.4	0.55	0.01	0.15	0.12	0.06
S77FL-101-1-4	12-18	B3	0.26	0.01	0.01	0.01	0.29	4.27	4.56	6	0.73	0.05	5.6	4.7	4.5	---	---	---	---	---
S77FL-101-1-5	18-28	C1	0.14	0.00	0.00	0.00	0.14	2.10	2.24	6	0.30	0.04	5.4	4.7	4.6	---	---	---	---	---
S77FL-101-1-6	28-37	C2	0.05	0.00	0.00	0.00	0.05	0.95	1.00	5	0.11	0.04	5.8	5.0	4.8	---	---	---	---	---
S77FL-101-1-7	37-62	C3	0.07	0.00	0.00	0.00	0.07	1.09	1.16	6	0.09	0.03	5.7	5.0	4.8	---	---	---	---	---
S77FL-101-1-8	62-75	C4	0.02	0.00	0.00	0.00	0.02	0.65	0.67	3	0.07	0.04	5.7	5.1	5.1	---	---	---	---	---
Newnan:																				
S77FL-101-10-1	0-5	A1	0.74	0.19	0.02	0.03	0.98	6.62	7.60	13	2.03	0.04	5.0	3.6	3.1	---	---	---	---	---
S77FL-101-10-2	5-22	A2	0.08	0.02	0.01	0.00	0.11	1.22	1.33	8	0.11	0.01	5.4	4.0	3.7	---	---	---	---	---
S77FL-101-10-3	22-26	B21h	0.18	0.05	0.03	0.01	0.27	10.73	11.00	2	0.98	0.03	5.3	4.3	4.1	0.70	0.01	0.25	0.23	0.05
S77FL-101-10-4	26-33	B22h	0.09	0.02	0.03	0.01	0.15	10.32	10.47	1	0.85	0.02	5.3	4.5	4.3	0.56	0.01	0.25	0.24	0.05
S77FL-101-10-5	33-38	B3	0.02	0.01	0.03	0.01	0.07	3.06	3.13	2	0.36	0.03	5.3	4.7	4.5	---	---	---	---	---
S77FL-101-10-6	38-44	A'2	0.02	0.02	0.02	0.01	0.07	3.60	3.67	2	0.22	0.04	5.0	4.6	4.4	---	---	---	---	---
S77FL-101-10-7	44-70	B'21t	0.26	0.32	0.06	0.04	0.68	9.78	10.46	7	0.12	0.03	6.1	4.1	3.8	---	---	---	---	---
S77FL-101-10-8	70-80	B'22t	0.00	0.20	0.05	0.05	0.30	7.85	8.15	4	0.04	0.03	4.9	4.0	3.8	---	---	---	---	---
Nobleton:																				
S78FL-101-18-1	0-6	Ap	3.10	0.06	0.07	0.21	3.44	1.00	4.44	77	1.26	0.08	6.2	5.2	5.1	---	---	---	---	---
S78FL-101-18-2	6-17	A21	0.52	0.01	0.06	0.12	0.71	3.92	4.63	15	0.54	0.02	6.1	4.7	4.4	---	---	---	---	---
S78FL-101-18-3	17-27	A22	0.40	0.01	0.06	0.05	0.52	3.03	3.55	15	0.38	0.02	5.9	4.8	4.5	---	---	---	---	---
S78FL-101-18-4	27-31	B1	0.97	0.05	0.07	0.05	1.14	2.68	3.82	30	0.12	0.02	5.9	4.9	4.5	---	---	---	---	---
S78FL-101-18-5	31-38	B21t	2.57	0.18	0.09	0.04	2.88	5.23	8.11	36	0.20	0.02	5.8	4.8	4.6	---	---	---	0.11	0.17
S78FL-101-18-6	38-69	B22t	2.55	0.18	0.12	0.08	2.93	11.56	14.49	20	0.11	0.02	5.4	4.1	3.7	---	---	---	0.12	0.18
S78FL-101-18-7	69-80	B22t	3.55	0.17	0.13	0.08	3.93	12.18	16.11	24	0.09	0.02	5.4	4.2	3.6	---	---	---	0.11	0.18
S78FL-101-18-8	80-96	Cg	9.32	0.19	0.16	0.17	9.84	10.22	20.06	49	0.05	0.02	5.5	4.3	3.7	---	---	---	---	---

See footnote at end of table.

TABLE 19.--CHEMICAL ANALYSES OF SELECTED SOILS--Continued

Soil name and sample number	Depth	Horizon	Extractable bases					Extractable acidity	Sum of cations	Base saturation	Organic carbon	Electrical conductivity	pH			Pyrophosphate extractable			Citrate dithionite extractable	
			C	Mg	Na	K	Sum						H_2O (1:1)	$CaCl_2$ 0.01M (1:2)	KCl, 1N (1:1)	C	Fe	Al	Al	Fe
			----Milliequivalents/100 grams of soil-----							Pct	Pct	Mmho /cm				Pct	Pct	Pct	Pct	Pct
Orlando:																				
S79FL-101-36-1	0-9	Ap	2.13	0.68	0.03	0.09	2.93	16.67	19.60	15	2.08	0.06	5.7	5.3	4.8	---	---	---	---	---
S79FL-101-36-2	9-21	A12	0.49	0.06	0.02	0.02	0.59	18.38	18.97	3	1.24	0.02	5.4	5.0	4.5	---	---	---	---	---
S79FL-101-36-3	21-31	A&C	0.11	0.02	0.01	0.01	0.15	14.78	14.93	1	0.64	0.06	5.1	5.0	4.6	---	---	---	---	---
S79FL-101-36-4	31-45	C1	0.08	0.02	0.02	0.01	0.13	11.00	11.13	1	0.22	0.04	4.7	5.0	4.7	---	---	---	---	---
S79FL-101-36-5	45-68	C2	0.11	0.03	0.01	0.01	0.16	7.22	7.38	2	0.15	0.04	5.0	5.2	4.9	---	---	---	---	---
S79FL-101-36-6	68-80	C3	0.10	0.03	0.02	0.00	0.15	9.45	9.60	2	0.20	0.17	5.1	5.2	5.0	---	---	---	---	---
Pineda:																				
S79FL-101-37-1	0-4	A11	2.80	0.64	0.39	0.15	3.98	57.73	61.71	6	8.28	0.04	4.1	3.8	3.4	---	---	---	---	---
S79FL-101-37-2	4-7	A21	0.15	0.03	0.03	0.00	0.21	8.76	8.97	2	0.55	0.02	4.7	4.3	4.0	---	---	---	---	---
S79FL-101-37-3	7-21	A22	0.18	0.02	0.02	0.00	0.22	4.47	4.69	5	0.12	0.03	5.5	5.2	5.1	---	---	---	---	---
S79FL-101-37-4	21-31	B21ir	0.32	0.03	0.02	0.00	0.37	1.13	1.50	25	0.10	0.03	5.8	5.5	5.6	0.09	0.10	0.00	0.02	0.54
S79FL-101-37-5	31-36	B22ir	0.55	0.07	0.05	0.00	0.67	0.21	0.88	76	0.10	0.03	6.2	5.9	6.0	0.04	0.10	0.00	0.02	0.79
S79FL-101-37-6	36-39	A'2	0.71	0.07	0.03	0.00	0.81	0.00	0.81	100	0.10	0.02	6.2	6.0	6.0	---	---	---	---	---
S79FL-101-37-7	39-57	B'21tg	2.85	0.30	0.12	0.04	3.31	3.28	6.59	50	0.10	0.07	6.8	6.6	6.3	---	---	---	0.04	0.11
S79FL-101-37-8	57-72	B'22tg	2.90	0.33	0.09	0.04	3.36	3.08	6.44	52	0.08	0.10	7.1	6.7	6.5	---	---	---	0.04	0.28
S79FL-101-37-9	72-80	Cg	2.70	0.18	0.04	0.02	2.94	1.23	4.17	71	0.04	0.07	7.4	6.9	6.6	---	---	---	---	---
Pomello:																				
S79FL-101-32-1	0-3	A11	0.98	0.19	0.02	0.03	1.22	1.40	2.62	47	1.35	0.07	4.5	3.7	3.4	---	---	---	---	---
S79FL-101-32-2	3-6	A12	0.15	0.04	0.01	0.01	0.21	0.60	0.81	26	0.42	0.15	4.4	3.8	3.7	---	---	---	---	---
S79FL-101-32-3	6-32	A2	0.04	0.01	0.00	0.00	0.05	15.80	15.85	<1	0.10	0.01	5.2	4.1	4.0	---	---	---	---	---
S79FL-101-32-4	32-36	B21h	0.17	0.03	0.02	0.01	0.23	15.40	15.63	1	1.40	0.03	4.7	4.1	3.9	1.07	0.00	0.25	0.23	0.01
S79FL-101-32-5	36-41	B22h	0.11	0.02	0.01	0.00	0.14	7.80	7.94	2	0.61	0.02	4.9	4.4	3.9	0.44	0.00	0.12	0.12	0.03
S79FL-101-32-6	41-54	B23h	0.03	0.01	0.01	0.00	0.05	3.68	3.73	1	0.30	0.02	4.9	4.5	4.2	---	---	---	---	---
S79FL-101-32-7	54-80	B3	0.03	0.02	0.02	0.00	0.07	1.13	1.20	6	0.17	0.03	4.6	4.6	4.3	---	---	---	---	---
Pomona:																				
S77FL-101-3-1	0-6	A1	0.63	0.25	0.02	0.04	0.94	6.10	7.04	13	1.74	0.09	4.2	3.2	3.0	---	---	---	---	---
S77FL-101-3-2	6-13	A21	0.11	0.03	0.00	0.00	0.14	0.41	0.55	25	0.35	0.04	4.6	3.4	3.2	---	---	---	---	---
S77FL-101-3-3	13-22	A22	0.03	0.01	0.00	0.00	0.04	0.00	0.04	100	0.12	0.03	5.5	4.1	4.0	---	---	---	---	---
S77FL-101-3-4	22-26	B21h	0.02	0.01	0.02	0.00	0.05	13.24	13.29	<1	1.38	0.04	4.7	4.0	4.0	1.25	0.00	0.25	0.20	0.04
S77FL-101-3-5	26-32	B22h	0.01	0.00	0.01	0.00	0.02	10.00	10.02	<1	0.97	0.04	4.7	4.1	4.1	0.76	0.00	0.15	0.16	0.02
S77FL-101-3-6	32-36	B3	0.01	0.00	0.01	0.00	0.02	2.16	2.18	1	0.22	0.04	4.8	4.3	4.3	---	---	---	---	---
S77FL-101-3-7	36-51	A'2	0.01	0.00	0.01	0.00	0.02	1.42	1.44	1	0.15	0.03	5.1	4.4	4.4	---	---	---	---	---
S77FL-101-3-8	51-52	B'1h	0.05	0.08	0.01	0.00	0.14	8.85	8.99	2	0.74	0.05	4.9	4.1	4.1	0.69	0.00	0.20	0.15	0.04
S77FL-101-3-9	52-60	B'2tg	0.03	0.17	0.00	0.01	0.21	11.15	11.36	2	0.68	0.04	4.8	4.0	4.0	---	---	---	0.17	0.02
S77FL-101-3-10	60-80	Cg	0.02	0.05	0.01	0.00	0.08	7.50	7.58	1	0.51	0.04	4.8	4.1	4.1	---	---	---	---	---
Samsula:																				
S78FL-101-27-1	0-3	Oa1	16.75	4.53	0.35	0.44	22.07	118.87	140.94	16	32.65	0.28	3.8	3.5	3.5	---	---	---	---	---
S78FL-101-27-2	3-24	Oa2	4.90	2.18	0.00	0.06	7.14	111.34	118.48	6	32.39	0.11	4.0	3.6	3.7	---	---	---	---	---
S78FL-101-27-3	24-32	Oa3	0.65	0.45	0.17	0.06	1.33	54.97	56.30	2	29.52	0.12	4.3	3.8	3.9	---	---	---	---	---
S78FL-101-27-4	32-35	Oa4	0.65	0.73	0.00	0.03	1.41	52.65	54.06	3	19.81	0.09	4.4	4.0	4.0	---	---	---	---	---
S78FL-101-27-5	35-39	IIA1b	0.04	0.06	0.00	0.01	0.11	3.16	3.27	3	0.93	0.03	4.7	4.4	4.3	---	---	---	---	---
S78FL-101-27-6	39-45	IIC1b	0.03	0.05	0.00	0.01	0.09	2.61	2.70	3	0.56	0.03	4.8	4.4	4.3	---	---	---	---	---
S78FL-101-27-7	45-80	IIC2b	0.02	0.02	0.00	0.01	0.05	2.06	2.11	2	0.20	0.03	4.9	4.6	4.5	---	---	---	---	---

See footnote at end of table.

TABLE 19.--CHEMICAL ANALYSES OF SELECTED SOILS--Continued

Soil name and sample number	Depth	Horizon	Extractable bases					Extractable acidity	Sum of cations	Base saturation	Organic carbon	Electrical conductivity	pH			Pyrophosphate extractable			Citrate dithionite extractable	
			C	Mg	Na	K	Sum						H_2O (1:1)	$CaCl_2$ 0.01M (1:2)	KCl, 1N (1:1)	C	Fe	Al	Al	Fe
			----Milliequivalents/100 grams of soil-----							Pct	Pct	Mmho /cm				Pct	Pct	Pct	Pct	Pct
Sellers:																				
S77FL-101-4-1	0-9	A11	1.66	0.27	0.08	0.03	2.04	17.65	19.69	10	3.66	0.14	4.3	3.6	3.4	---	---	---	---	---
S77FL-101-4-2	9-20	A12	0.39	0.05	0.06	0.01	0.51	7.40	7.91	6	1.14	0.06	4.6	3.8	3.7	---	---	---	---	---
S77FL-101-4-3	20-24	A13	0.17	0.03	0.02	0.00	0.22	3.65	3.87	6	0.73	0.08	4.6	4.1	4.0	---	---	---	---	---
S77FL-101-4-4	24-34	C1	0.14	0.01	0.03	0.00	0.18	0.61	0.79	23	0.13	0.05	5.0	4.3	4.1	---	---	---	---	---
S77FL-101-4-5	34-48	C2	0.09	0.02	0.01	0.00	0.12	2.50	2.62	5	0.30	0.06	4.6	4.1	4.0	---	---	---	---	---
S77FL-101-4-6	48-80	C3	0.02	0.00	0.01	0.00	0.03	1.08	1.11	3	0.17	0.04	5.0	4.3	4.3	---	---	---	---	---
Smyrna:																				
S78FL-101-23-1	0-3	A11	1.45	0.07	0.10	0.11	1.73	23.04	24.77	7	3.61	0.05	4.2	3.3	2.9	---	---	---	---	---
S78FL-101-23-2	3-5	A12	0.65	0.03	0.08	0.04	0.80	9.99	10.79	7	1.98	0.03	4.4	3.2	2.9	---	---	---	---	---
S78FL-101-23-3	5-10	A2	0.10	0.01	0.07	0.02	0.20	4.53	4.73	4	0.56	0.02	4.6	3.3	3.1	---	---	---	---	---
S78FL-101-23-4	10-13	B1	0.05	0.00	0.07	0.02	0.14	4.02	4.16	3	0.65	0.02	4.6	3.4	3.4	---	---	---	---	---
S78FL-101-23-5	13-16	B21h	0.05	0.00	0.08	0.02	0.15	13.81	13.96	1	1.76	0.03	4.7	3.8	3.8	1.18	0.00	0.26	0.18	0.03
S78FL-101-23-6	16-25	B22h	0.00	0.00	0.07	0.02	0.09	7.62	7.71	1	0.95	0.02	4.9	4.1	4.1	0.73	0.00	0.20	0.14	0.03
S78FL-101-23-7	25-35	B3&Bh	0.10	0.00	0.08	0.11	0.29	2.40	2.69	11	0.34	0.11	4.6	4.4	4.4	---	---	---	---	---
S78FL-101-23-8	35-50	C1	0.05	0.00	0.07	0.01	0.13	0.55	0.68	19	0.13	0.01	5.2	4.5	4.5	---	---	---	---	---
S78FL-101-23-9	50-80	C2	0.10	0.00	0.06	0.01	0.17	0.00	0.17	100	0.06	0.01	5.2	4.6	4.6	---	---	---	---	---
Sparr:																				
S77FL-101-12-1	0-6	Ap	1.45	0.51	0.01	0.16	2.13	2.90	5.03	42	0.95	0.07	6.0	5.2	5.1	---	---	---	---	---
S77FL-101-12-2	6-11	A21	0.66	0.09	0.01	0.10	0.86	3.13	3.99	22	0.47	0.04	6.0	5.2	4.9	---	---	---	---	---
S77FL-101-12-3	11-16	A22	0.29	0.04	0.01	0.07	0.41	2.58	2.99	10	0.35	0.03	6.0	5.2	4.7	---	---	---	---	---
S77FL-101-12-4	16-35	A23	0.13	0.02	0.01	0.04	0.20	1.77	1.97	10	0.16	0.03	5.9	5.1	4.7	---	---	---	---	---
S77FL-101-12-5	35-43	A24	0.13	0.05	0.02	0.06	0.26	1.16	1.42	18	0.09	0.02	5.8	4.9	4.9	---	---	---	---	---
S77FL-101-12-6	43-48	B21t	0.41	0.22	0.01	0.17	0.81	4.01	4.82	17	0.19	0.07	4.9	4.4	4.1	---	---	---	0.15	0.61
S77FL-101-12-7	48-59	B22t	0.56	0.59	0.02	0.12	1.29	5.57	6.86	19	0.14	0.08	4.8	4.4	4.1	---	---	---	0.22	1.14
S77FL-101-12-8	59-80	B23t	0.60	0.51	0.02	0.07	1.20	4.89	6.09	20	0.11	0.08	4.8	4.3	4.0	---	---	---	0.14	0.93
Tavares:																				
S78FL-101-22-1	0-3	A1	0.05	0.02	0.07	0.04	0.18	5.86	6.04	3	1.20	0.03	5.1	4.1	3.8	---	---	---	---	---
S78FL-101-22-2	3-9	C1	0.10	0.00	0.07	0.01	0.18	3.63	3.81	5	0.34	0.02	5.3	4.4	4.2	---	---	---	---	---
S78FL-101-22-3	9-34	C2	0.10	0.00	0.07	0.01	0.18	1.85	2.03	9	0.14	0.02	5.2	4.5	4.3	---	---	---	---	---
S78FL-101-22-4	34-56	C3	0.05	0.00	0.07	0.01	0.13	1.78	1.91	7	0.03	0.02	5.0	4.4	4.3	---	---	---	---	---
S78FL-101-22-5	56-76	C4	0.05	0.00	0.07	0.01	0.13	1.64	1.77	7	0.03	0.02	5.2	4.5	4.4	---	---	---	---	---
S78FL-101-22-6	76-86	C5	0.05	0.00	0.07	0.02	0.14	1.10	1.24	11	3.61	0.02	5.2	4.6	4.5	---	---	---	---	---
Vero:																				
S77FL-101-2-1	0-6	A1	2.20	0.64	0.07	0.07	2.98	17.29	20.27	15	4.97	0.12	4.1	3.3	3.0	---	---	---	---	---
S77FL-101-2-2	6-11	A21	0.59	0.10	0.00	0.00	0.69	1.63	2.32	30	0.48	0.03	4.7	3.5	3.4	---	---	---	---	---
S77FL-101-2-3	11-23	A22	0.23	0.02	0.00	0.00	0.25	0.16	0.41	11	0.05	0.03	6.0	4.9	5.1	---	---	---	---	---
S77FL-101-2-4	23-27	B21h	3.81	0.15	0.01	0.01	3.98	1.91	5.89	68	0.57	0.06	6.8	6.0	5.9	0.35	0.02	0.08	0.08	0.09
S77FL-101-2-5	27-30	B22h	4.59	0.16	0.02	0.01	4.78	3.21	7.99	60	0.66	0.06	6.8	6.1	6.0	0.39	0.02	0.15	0.16	0.08
S77FL-101-2-6	30-35	B21tg	14.36	1.22	0.11	0.05	15.74	5.01	20.75	76	0.42	0.19	7.0	6.4	5.7	---	---	---	0.10	0.54
S77FL-101-2-7	35-44	B22tg	12.49	0.99	0.08	0.04	13.60	3.99	17.59	77	0.12	0.19	7.4	6.5	5.9	---	---	---	0.14	0.84
S77FL-101-2-8	44-51	B3g	9.89	0.71	0.06	0.02	10.68	2.16	12.84	83	0.05	0.21	8.0	7.1	6.9	---	---	---	---	---
S77FL-101-2-9	51-66	C1g	20.61	0.31	0.02	0.01	20.95	0.04	20.99	100	0.05	0.17	8.7	7.6	7.7	---	---	---	---	---
S77FL-101-2-10	66-80	C2g	17.06	0.39	0.04	0.01	17.50	0.49	17.99	97	0.02	0.19	8.5	7.7	7.6	---	---	---	---	---

See footnote at end of table.

TABLE 19.--CHEMICAL ANALYSES OF SELECTED SOILS--Continued

Soil name and sample number	Depth	Horizon	Extractable bases					Extractable acidity	Sum of cations	Base saturation	Organic carbon	Electrical conductivity	pH			Pyrophosphate extractable			Citrate dithionite extractable	
			C	Mg	Na	K	Sum						H_2O (1:1)	$CaCl_2$ 0.01M (1:2)	KCl, 1N (1:1)	C	Fe	Al	Al	Fe
			----Milliequivalents/100 grams of soil-----							Pct	Pct	Mmho /cm				Pct	Pct	Pct	Pct	Pct
Wauchula*:																				
S77FL-101-5-1	0-5	A11	1.45	0.18	0.05	0.03	1.71	6.49	8.20	21	1.79	0.07	4.6	3.5	3.4	0.32	0.00	0.00	0.02	0.09
S77FL-101-5-2	5-8	A12	0.83	0.04	0.01	0.01	0.89	3.05	3.94	23	0.84	0.04	4.8	3.7	3.7	0.21	0.00	0.00	0.00	0.05
S77FL-101-5-3	8-12	A21	0.27	0.00	0.01	0.00	0.28	0.95	1.23	23	0.34	0.03	5.2	4.1	4.0	0.35	0.00	0.00	0.02	0.04
S77FL-101-5-4	12-19	A22	0.14	0.00	0.00	0.00	0.14	0.61	0.75	19	0.19	0.02	5.3	4.2	4.1	0.09	0.00	0.00	0.01	0.05
S77FL-101-5-5	19-23	B21h	0.79	0.04	0.01	0.00	0.84	17.21	18.05	5	2.32	0.04	5.0	4.1	4.0	1.52	0.01	0.28	0.26	0.04
S77FL-101-5-6	23-26	B22h	0.19	0.01	0.01	0.00	0.21	13.89	14.01	1	1.21	0.03	5.1	4.3	4.2	1.02	0.00	0.35	0.28	0.03
S77FL-101-5-7	26-31	B3	0.07	0.01	0.01	0.00	0.09	5.49	5.58	2	0.53	0.03	5.1	4.4	4.3	0.35	0.01	0.18	0.13	0.04
S77FL-101-5-8	31-34	A'2	0.05	0.01	0.01	0.00	0.07	3.05	3.12	2	0.23	0.02	5.1	4.4	4.4	0.12	0.03	0.05	0.12	0.14
S77FL-101-5-9	34-36	B'21tg	0.22	0.21	0.01	0.00	0.44	6.64	7.08	6	0.29	0.04	4.9	4.1	4.0	0.14	0.06	0.20	0.16	0.26
S77FL-101-5-10	36-57	B'22tg	0.15	0.36	0.01	0.01	0.53	8.34	8.87	6	0.22	0.03	4.8	4.0	3.8	0.05	0.02	0.10	0.18	0.67
S77FL-101-5-11	57-80	B'23tg	0.24	0.31	0.01	0.01	0.57	6.59	7.16	8	0.07	0.03	4.8	4.0	3.7	0.00	0.00	0.05	0.11	0.48
Weekiwachee:																				
S77FL-101-15-1	0-8	Oa1	33.80	5.82	194.87	7.70	242.19	35.74	277.93	87	32.66	199.80	5.8	5.8	5.7	---	---	---	---	---
S77FL-101-15-2	8-16	Oa2	30.00	5.72	179.21	6.18	221.11	41.22	262.33	84	31.24	190.00	5.4	5.4	5.4	---	---	---	---	---
S77FL-101-15-3	16-31	Oa3	32.33	5.04	134.62	4.46	176.45	65.08	241.53	73	29.60	154.00	4.7	4.9	4.6	---	---	---	---	---
S77FL-101-15-4	31-39	IIC	6.34	5.73	14.84	0.31	27.22	22.94	50.16	54	2.86	9.60	3.4	3.4	3.2	---	---	---	---	---
Zephyr:																				
S77FL-101-6-1	13-6	Oa1	6.17	2.50	0.37	0.43	9.47	51.73	61.20	15	23.98	0.58	4.3	3.8	3.5	---	---	---	---	---
S77FL-101-6-2	6-0	Oa2	0.78	0.50	0.14	0.10	1.52	33.16	34.68	4	14.35	0.20	4.4	3.7	3.5	---	---	---	---	---
S77FL-101-6-3	0-10	A1&A2	0.09	0.07	0.02	0.03	0.21	2.33	2.54	8	0.69	0.04	4.8	3.8	3.8	---	---	---	---	---
S77FL-101-6-4	10-18	A3	0.12	0.14	0.03	0.01	0.30	1.93	2.23	13	0.45	0.05	4.8	3.9	3.8	---	---	---	---	---
S77FL-101-6-5	18-33	B21tg	1.65	1.89	0.19	0.03	2.06	11.97	14.03	15	0.40	0.11	4.4	3.5	3.2	---	---	---	0.08	0.19
S77FL-101-6-6	33-39	B22tg	2.47	2.55	0.22	0.03	5.27	11.87	17.14	31	0.28	0.11	4.3	3.5	3.0	---	---	---	0.07	0.22
S77FL-101-6-7	39-48	B23tg	2.15	2.34	0.21	0.02	4.72	11.05	15.77	30	0.22	0.10	4.3	3.5	3.0	---	---	---	---	---
S77FL-101-6-8	48-58	B3g	1.22	1.10	0.13	0.01	2.46	6.19	8.65	28	0.16	0.07	4.5	3.6	3.2	---	---	---	---	---
S77FL-101-6-9	58-67	Cg	0.89	0.73	0.10	0.01	1.73	4.77	6.50	27	0.16	0.06	4.7	3.8	3.5	---	---	---	---	---
Zolfo:																				
S79FL-101-33-1	0-3	Ap	0.45	0.07	0.02	0.06	0.60	3.67	4.27	14	0.63	0.09	4.8	4.5	3.9	---	---	---	---	---
S79FL-101-33-2	3-11	A21	0.53	0.07	0.06	0.03	0.69	2.97	3.66	19	0.46	0.06	5.8	5.2	4.8	---	---	---	---	---
S79FL-101-33-3	11-21	A22	0.18	0.03	0.01	0.02	0.24	1.39	1.63	15	0.26	0.02	5.9	5.3	5.0	---	---	---	---	---
S79FL-101-33-4	21-32	A23	0.05	0.02	0.01	0.01	0.09	0.74	0.83	11	0.10	0.02	5.7	5.3	5.0	---	---	---	---	---
S79FL-101-33-5	32-51	A24	0.03	0.02	0.01	0.01	0.07	0.21	0.28	25	0.06	0.01	5.6	5.0	4.9	---	---	---	---	---
S79FL-101-33-6	51-65	A25	0.03	0.02	0.00	0.01	0.06	2.89	2.95	2	0.05	0.04	5.0	5.0	4.9	---	---	---	---	---
S79FL-101-33-7	65-80	B21h	0.03	0.02	0.00	0.01	0.06	3.36	3.42	2	0.49	0.03	4.8	4.7	4.6	0.48	0.01	0.16	0.07	0.03

*The soil is a taxadjunct to the series. See text for a description of those characteristics of the soil that are outside the range of the series.

TABLE 20.--CLAY MINERALOGY OF SELECTED SOILS

Soils series and sample number	Depth	Horizon	Percentage of clay minerals				
			Mont-morillonite	14 angstrom intergrade	Kaolinite	Quartz	Gibbsite
	In						
Adamsville							
S78FL-101-21-1	0-3	A11	6	38	22	34	0
S78FL-101-21-4	23-40	C2	5	34	23	38	0
S78FL-101-21-6	57-80	C3	0	22	12	66	0
Aripeka							
S78FL-101-30-1	0-2	A11	25	44	12	19	0
S78FL-101-30-4	12-17	B21t	0	63	16	21	0
S78FL-101-30-5	17-23	B22t	0	30	16	54	0
Arrendondo*							
S77FL-101-13-1	0-5	AP	0	35	33	32	0
S77FL-101-13-4	18-35	A22	0	38	41	21	0
S77FL-101-13-7	63-68	B21t	0	33	67	0	0
S77FL-101-13-9	72-87	B3t	0	14	86	0	0
Candler							
S78FL-101-29-1	0-3	A11	0	48	21	31	0
S78FL-101-29-3	9-32	A21	0	43	15	42	0
S78FL-101-29-5	50-82	A23&B	0	27	12	61	0
Candler Variant							
S78FL-101-28-1	0-4	A11	0	40	9	51	0
S78FL-101-28-3	8-23	A21	0	38	9	53	0
S78FL-101-28-6	72-80	A24&B	0	20	6	74	0
Chobee							
S79FL-101-34-1	0-6	A11	97	0	0	3	0
S79FL-101-34-3	11-25	B21tgca	97	0	0	3	0
S79FL-101-34-6	56-80	Cg	99	0	0	1	0
Felda							
S77FL-101-7-1	0-4	A1	66	15	4	15	0
S77FL-101-7-4	23-27	B21tg	74	16	6	4	0
S77FL-101-7-8	47-80	Cg	79	0	5	16	0
Flemington Variant							
S78FL-101-19-1	0-5	Ap	27	0	13	60	0
S78FL-101-19-3	11-27	B22tg	77	0	7	16	0
S78FL-101-19-6	63-80	B3g	94	0	0	6	0
Homosassa							
S77FL-101-16-1	3-0	Oa	0	40	0	60	0
S77FL-101-16-4	22-31	C2	0	40	5	55	0
S77FL-101-16-5	31-40	C3	0	48	10	42	0
Immokalee							
S79FL-101-35-1	0-4	A1	0	0	0	100	0
S79FL-101-35-4	33-37	B21h	0	0	0	100	0
S79FL-101-35-7	62-80	C	0	49	20	31	0
Kendrick							
S77FL-101-14-1	0-7	Ap	0	24	66	0	0
S77FL-101-14-5	28-32	B21t	0	11	86	3	0
S77FL-101-14-8	73-80	Cg	0	4	94	2	0
Lake							
S78FL-101-31-1	0-8	Ap	0	38	11	51	0
S78FL-101-31-2	8-28	C1	0	27	26	47	0
S78FL-101-31-5	60-80	C3	0	18	10	72	0
Lochlossa*							
S78FL-101-20-1	0-6	Ap	tr	26	26	49	0
S78FL-101-20-5	24-34	B21t	tr	17	69	14	0
S78FL-101-20-6	34-51	B22tg	tr	13	65	21	0
S78FL-101-20-8	73-90	C	tr	6	94	0	0

See footnotes at end of table.

TABLE 20.--CLAY MINERALOGY OF SELECTED SOILS--Continued

Soils series and sample number	Depth	Horizon	Percentage of clay minerals				
			Mont-morillonite	14 angstrom intergrade	Kaolinite	Quartz	Gibbsite
	In						
Micanopy*							
S78FL-101-17-1	0-6	Ap	0	33	30	37	0
S78FL-101-17-3	9-15	B21t	25	0	54	21	0
S78FL-101-17-4	15-30	B22tg	34	0	42	24	0
S78FL-101-17-6	44-58	B23tg	67	0	25	8	0
S78FL-101-17-8	69-89	B3g	96	0	2	2	0
Millhopper							
S78FL-101-24-1	0-3	A11	tr	23	7	70	0
S78FL-101-24-6	59-64	B21t	0	59	24	17	0
S78FL-101-24-7	64-80	B22tg	6	14	72	8	0
Narcoossee							
S77FL-101-1-1	0-3	A1	0	41	14	45	0
S77FL-101-1-3	9-12	Bh	0	33	7	60	0
S77FL-101-1-6	28-37	C2	0	33	8	59	0
Newnan							
S77FL-101-10-1	0-5	A1	0	20	8	72	0
S77FL-101-10-3	22-26	B21h	0	37	15	48	0
S77FL-101-10-7	44-70	B'21t	0	17	71	12	0
Nobleton							
S78FL-101-18-1	0-6	Ap	0	38	30	32	0
S78FL-101-18-5	31-38	B21t	0	24	59	17	0
S78FL-101-18-6	38-69	B22t	14	15	61	10	0
S78FL-101-18-8	80-96	Cg	14	0	69	17	0
Orlando							
S79FL-101-36-3	21-31	A&C	0	100	0	0	0
S79FL-101-36-6	68-80	C3	0	56	31	13	0
Pineda							
S79FL-101-37-7	39-57	B'21tg	34	22	32	12	0
S79FL-101-37-9	72-80	Cg	21	30	46	3	0
Pomello							
S79FL-101-32-1	0-3	A11	0	77	0	23	0
S79FL-101-32-4	32-36	B21h	0	52	0	48	0
S79FL-101-32-7	54-80	B3	0	58	0	42	0
Pomona							
S79FL-101-3-1	0-6	A1	0	0	5	95	0
S79FL-101-3-4	22-26	B21h	0	14	13	73	0
S79FL-101-3-9	52-60	B'2tg	0	28	14	4	54
S79FL-101-3-10	60-80	Cg	0	16	72	11	0
Samsula							
S78FL-101-27-5	35-39	IIA12b	0	31	25	44	0
S78FL-101-27-6	37-45	IIC1b	0	23	22	55	0
S78FL-101-27-7	45-80	IIC2b	0	34	32	34	0
Sellers							
S77FL-101-4-1	0-9	A11	0	21	6	73	0
S77FL-101-4-4	24-34	C1	0	21	10	58	0
S77FL-101-4-6	48-80	C3	11	27	18	49	0
Smyrna							
S78FL-101-23-1	0-3	A11	0	12	14	39	0
S78FL-101-23-5	13-16	B21h	0	25	10	54	11
S78FL-101-23-9	50-80	C2	0	30	11	20	39
Sparr							
S77FL-101-12-1	0-6	Ap	0	39	47	14	0
S77FL-101-12-4	16-35	A23	0	35	59	6	0
S77FL-101-12-8	43-48	B21t	0	21	66	3	9
S77FL-101-12-6	59-80	B23t	0	5	95	0	0

See footnotes at end of table.

TABLE 20.--CLAY MINERALOGY OF SELECTED SOILS--Continued

Soils series and sample number	Depth	Horizon	Percentage of clay minerals				
			Montmorillonite	14 angstrom intergrade	Kaolinite	Quartz	Gibbsite
	In						
Tavares							
S78FL-101-22-1	0-3	A1	0	25	68	7	0
S78FL-101-22-3	9-34	C2	0	40	13	23	24
S78FL-101-22-6	76-86	C5	0	29	9	39	23
Vero							
S77FL-101-2-1	0-6	A1	0	0	0	100	0
S77FL-101-2-4	23-27	B21h	8	23	11	58	0
S77FL-101-2-6	30-35	B21tg	56	18	20	6	0
S77FL-101-2-10	66-80	C2g	3	0	96	1	0
Wauchula*							
S77FL-101-5-1	0-5	A11	0	0	3	97	0
S77FL-101-5-5	19-23	B21h	0	57	6	37	0
S77FL-101-5-9	34-36	B'21tg	0	19	69	12	0
S77FL-101-5-11	57-80	B'23tg	6	91	0	3	0
Weekiwachee							
S77FL-401-15-1**	31-39	IIC	0	0	0	0	0
Zephyr							
S77FL-101-6-1	13-6	Oa1	0	0	0	100	0
S77FL-101-6-5	18-33	B21tg	58	0	23	19	0
S77FL-101-6-9	58-67	Cg	57	0	12	31	0
Zolfo							
S79FL-101-33-1	0-3	Ap	0	62	0	38	0
S79FL-101-33-4	21-32	A23	0	64	0	36	0
S79FL-101-33-7	65-80		0	0	0	100	0

* The soil is a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series.

** Totally amorphous.

TABLE 21--.ENGINEERING INDEX TEST DATA

[Dashes indicate data were not available. NP means nonplastic]

Soil name, report number, horizon, and depth in inches	Classification		Grain-size distribution							Liquid limit	Plasticity index	Moisture density	
			Percentage passing sieve--				Percentage smaller than--						
	AASHTO	Unified	No. 4	No. 10	No 40	No. 200	.02 mm	.005 mm	.002 mm			Max. dry density	Optimum moisture
										Pct		Lb/ft3	Pct
Adamsville fine sand:[1] (S78FL-101-021)													
C2-------23 to 57	A-3 (01)	SP-SM	100	100	94	9	2	1	1	--	NP	110	12
Arredondo fine sand:[2] (S77FL-101-013)													
A2------- 8 to 58	A-3 (01)	SP-SM	100	100	99	5	1	--	--	--	NP	106	14
B2t------63 to 87	A-2-6(00)	SC	100	100	99	32	31	27	26	26	11	113	15
Candler fine sand:[3] (S78FL-101-029)													
A2------- 9 to 50	A-3 (01)	SP	100	100	97	3	2	1	--	--	NP	105	15
A23&B----50 to 82	A-3 (01)	SP	100	100	98	4	1	--	--	--	NP	106	15
Candler Variant fine sand:[4] (S78FL-101-028)													
A21------ 8 to 23	A-2-4(00)	SM	100	100	99	14	3	1	1	--	NP	105	15
A24&B----72 to 80	A-2-4(00)	SM	100	100	100	14	2	--	--	--	NP	103	16
Felda fine sand:[5] (S77FL-101-007)													
A2------- 4 to 23	A-2-4(00)	SP-SM	100	100	99	12	2	--	--	--	NP	106	13
B21tg----23 to 41	A-2-4(00)	SM	100	100	97	24	14	11	10	21	3	117	13
Flemington Variant fine sand:[6] (S78FL-101-019)													
B2tg----- 5 to 63	A-7-6(19)	CL	100	100	99	62	52	50	49	49	36	84	20
Kendrick fine sand:[7] (S77FL-101-014)													
A3------- 7 to 28	A-2-4(00)	SP-SM	100	100	99	11	5	3	3	--	NP	111	12
B2t------28 to 73	A-6 (01)	SC	100	100	99	39	27	26	26	24	12	117	14
Lake fine sand:[8] (S78FL-101-031)													
C-------- 8 to 80	A-3 (01)	SP-SM	100	100	98	9	4	3	3	--	NP	109	13

See footnotes at end of table.

TABLE 21.--ENGINEERING INDEX TEST DATA--Continued

Soil name, report number, horizon, and depth in inches	Classification		Grain-size distribution							Liquid limit	Plasticity index	Moisture density	
			Percentage passing sieve--				Percentage smaller than--						
	AASHTO	Unified	No. 4	No. 10	No. 40	No. 200	.02 mm	.005 mm	.002 mm			Max. dry density	Optimum moisture
										Pct		Lb/ft3	Pct
Micanopy fine sand:[9] (S78FL-101-017)													
B2tg-----15 to 69	A-7-6(08)	CL	100	100	99	54	42	41	40	41	21	97	23
B3g------69 to 89	A-6 (02)	SC	100	100	93	37	28	26	24	35	18	110	15
Narcoossee fine sand:[10] (S77FL-101-001)													
Bh------- 9 to 18	A-2-4(00)	SM	100	100	100	15	--	--	--	--	NP	102	15
C---------18 to 75	A-2-4(00)	SM	100	100	100	13	1	--	--	--	NP	104	14
Newnan fine sand:[11] (S77FL-101-010)													
A2------- 5 to 22	A-2-4(00)	SP-SM	100	100	98	12	2	--	--	--	NP	102	15
B2h------22 to 33	A-2-4(00)	SM	100	100	98	16	3	2	--	--	NP	107	13
B'2t-----44 to 80	A-2-6(01)	SC	100	100	99	32	27	25	25	33	15	111	16
Nobleton fine sand:[12] (S78FL-101-018)													
A22------17 to 27	A-2-4(00)	SM	100	100	97	21	8	6	5	--	NP	114	10
B2t------38 to 80	A-6 (04)	SC	100	100	99	48	40	37	37	36	16	93	15
Pomona fine sand:[13] (S77FL-101-003)													
A21------ 6 to 22	A-2-4(00)	SP-SM	100	100	100	12	--	--	--	--	NP	102	15
B21h-----22 to 32	A-2-4(00)	SM	100	100	100	17	2	--	--	--	NP	100	13
B'2tg----52 to 60	A-2-4(00)	SM	100	100	100	27	6	14	12	--	NP	111	14
Samsula muck:[14] (S78FL-101-027)													
IIC1b----39 to 45	A-3 (01)	SP-SM	100	100	97	5	3	2	2	--	NP	108	13
IIC2b----45 to 80	A-3 (01)	SP-SM	100	100	97	5	1	--	--	--	NP	107	13
Sellers mucky loamy fine sand:[15] (S77FL-101-004)													
A1------- 0 to 24	A-2-4(00)	SM	100	100	100	20	--	--	--	--	NP	88	22
C---------24 to 80	A-2-4(00)	SP-SM	100	100	100	12	1	--	--	--	NP	105	13
Smyrna fine sand:[16] (S78FL-101-023)													
B2h------13 to 25	A-2-4(00)	SM	100	100	97	13	3	1	1	--	NP	101	14
C1-------35 to 50	A-3 (01)	SP-SM	100	100	98	9	2	--	--	--	NP	108	13

See footnotes at end of table.

TABLE 21.--ENGINEERING INDEX TEST DATA--Continued

Soil name, report number, horizon, and depth in inches	Classification		Grain-size distribution							Liquid limit	Plasticity index	Moisture density	
			Percentage passing sieve--				Percentage smaller than--						
	AASHTO	Unified	No. 4	No. 10	No. 40	No. 200	.02 mm	.005 mm	.002 mm			Max. dry density	Optimum moisture
										Pct		Lb/ft3	Pct
Sparr fine sand:[17] (S77FL-101-012)													
A2-------11 to 43	A-3 (01)	SP-SM	100	100	98	7	1	--	--	--	NP	109	12
B2t------43 to 80	A-2-6(00)	SC	100	100	99	35	32	30	30	28	12	113	15
Tavares sand:[18] (S78FL-101-022)													
C-------- 9 to 86	A-3 (01)	SP-SM	100	100	93	9	2	2	2	--	NP	111	12
Vero Variant fine sand:[19] (S77FL-101-002)													
A2------- 6 to 23	A-2-4(00)	SM	100	100	100	15	1	--	--	--	NP	100	14
B2h------23 to 30	A-2-4(00)	SM	100	100	100	17	7	5	4	--	NP	109	13
B22tg----35 to 44	A-2-6(00)	SC	100	100	100	33	22	20	20	28	12	111	14
Wauchula fine sand:[20] (S77FL-101-005)													
A2------- 8 to 19	A-2-4(00)	SM	100	100	100	13	--	--	--	--	NP	103	14
B2h------19 to 26	A-2-4(00)	SM	100	100	91	27	6	4	3	--	NP	57	36
B'22tg---36 to 57	A-6 (02)	SC	100	100	100	41	30	29	28	31	15	109	17
Zephyr muck:[21] (S77FL-101-006)													
B2tg----18 to 48	A-4 (00)	SC	100	100	100	36	23	19	19	24	8	112	16

---

[1] Adamsville fine sand:
About 1.6 mi W. of Florida Highway 581 and 80 ft N. of trail rd; SE1/4NE1/4, sec. 22, T. 24 S., R. 19 E.

[2] Arredondo fine sand:
About 0.3 mi N. of Lake Iola and 0.5 mi E. of I-75; NW1/4NW1/4, sec. 15. T. 24 S., R. 20 E.

[3] Candler fine sand:
About 0.3 mi S. of county line and 20 ft W. of power trunk line; NE1/4NE1/4, sec. 6, T. 24 S., R. 18 E.

[4] Candler Variant fine sand:
About 2.4 mi S. of county line and 25 ft E. of U.S. 41; NW1/4SE1/4, sec. 14, T. 24 S., R. 18 E.

[5] Felda fine sand:
About 2.3 mi W. of Quail Hollow School, 2.7 mi N. of Florida Highway 54; NW1/4NE1/4, sec. 3, T. 26 S., R. 19 E.

[6] Flemington Variant fine sand:
About 0.5 mi W. of Florida Highway 581 and 450 ft S. of trail rd; NE1/4SE1/4, sec. 23, T. 24 S., R. 19 E.

[7] Kendrick fine sand:
About 0.2 mi W. of Florida Highway 577 and 0.3 mi S. of grade rd; NW1/4SE1/4, sec. 16, T. 24 S., R. 20 E.

[8] Lake fine sand:
About 0.3 mi W. of Power Line Rd and 500 ft S. of Florida Highway 575; NW1/4SE1/4, sec. 28, T. 23 S., R. 21 E.

[9] Micanopy fine sand:
About 0.3 mi W. of Florida Highway 581 and 80 ft N. of trail rd; SW1/4NW1/4, sec. 24, T. 24 S., R. 19 E.

[10] Narcossee fine sand:
100 ft N. of pipeline, 0.4 mi SW. of pumping station; SE1/4NE1/4, sec. 29, T. 25 S.., R. 40 E.

[11] Newnan fine sand:
About 2.3 mi S. of Florida Highway 54 and 0.8 mi W. of grade rd; NW1/4SW1/4, sec. 21, T. 26 S., R. 20 E.

[12] Nobleton fine sand:
0.37 mi W. of Florida Highway 581 and 0.13 mi N. of an E-W trail rd; SE1/4NE1/4, sec. 23, T. 24 S., R. 19 E.

[13] Pomona fine sand:
0.2 mi E. of pipeline, 1.7 mi E. of pumping station; SW1/4SW1/4, sec. 22, T. 25 S., R. 18 E.

[14] Samsula muck:
About 0.6 mi E. of U.S. Highway 301 and 0.5 mi S. of entrance rd; SE1/4SW1/4, sec. 23, T. 24 S., R. 21 E.

[15] Sellers mucky loamy fine sand:
About 4 mi S. of Florida Highway 52, 0.5 mi E. of Florida Highway 583; NW1/4NE1/4, sec. 29, T. 25 S., R. 19 E.

[16] Smyrna fine sand:
About 3.3 mi W. of Florida Highway 581 and 0.3 mi SE. of cattle pens; NW1/4SW1/4, sec. 21, T. 24 S., R. 19 E.

[17] Sparr fine sand:
About 0.1 mi E. of Florida Highway 577 and 0.2 mi S. of I-75; SW1/4NE1/4, sec. 16, T. 24 S., R. 20 E.

[18] Tavares sand:
About 2.1 mi W. of Florida Highway 581 and 450 ft N. of trail rd; SE1/4NW1/4, sec. 22., T. 24 S., R. 20 E.

[19] Vero Variant fine sand:
0.3 mi W. of pipeline, 1.25 mi E. of pumping station; NW1/4NW1/4, sec. 27, T. 25 S., R. 19 E.

[20] Wauchula fine sand:
About 1.75 mi E. of pumping station and 0.1 mi N. of trail rd 9; SW1/4SW1/4, sec. 27, T. 25 S., R. 19 E.

[21] Zephyr muck:
About 2.5 mi W. of Quail Hollow School and 3.5 mi N. of Florida Highway 54; SE1/4NW1/4, sec. 3, T. 26 S., R. 19 E.

TABLE 22.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Adamsville	Hyperthermic, uncoated Aquic Quartzipsamments
Anclote	Sandy, siliceous, hyperthermic Typic Haplaquolls
Aripeka	Fine-loamy, siliceous, hyperthermic Aquic Hapludalfs
*Arredondo	Loamy, siliceous, hyperthermic Grossarenic Paleudults
Astatula	Hyperthermic, uncoated Typic Quartzipsamments
Basinger	Siliceous, hyperthermic Spodic Psammaquents
Bessie	Clayey, montmorillonitic, euic, hyperthermic Terric Medisaprists
Blichton	Loamy, siliceous, hyperthermic Arenic Plinthic Paleaquults
Candler	Hyperthermic, uncoated Typic Quartzipsamments
Candler Variant	Hyperthermic, coated Typic Quartzipsamments
Cassia	Sandy, siliceous, hyperthermic Typic Haplohumods
Chobee	Fine-loamy, siliceous, hyperthermic Typic Argiaquolls
Delray	Loamy, mixed, hyperthermic Grossarenic Argiaquolls
EauGallie	Sandy, siliceous, hyperthermic Alfic Haplaquods
Electra Variant	Sandy, siliceous, hyperthermic Arenic Haplohumods
Felda	Loamy, siliceous, hyperthermic Arenic Ochraqualfs
Flemington Variant	Fine, montmorillonitic, hyperthermic Typic Albaqualfs
Gainesville	Hyperthermic, coated Typic Quartzipsamments
Homosassa	Sandy, siliceous, hyperthermic Typic Sulfaquents
Immokalee	Sandy, siliceous, hyperthermic Arenic Haplaquods
Jonesville	Loamy, siliceous, hyperthermic Arenic Hapludalfs
Kanapaha	Loamy, siliceous, hyperthermic Grossarenic Paleaquults
Kendrick	Loamy, siliceous, hyperthermic Arenic Paleudults
Lacoochee	Siliceous, hyperthermic, shallow Spodic Psammaquents
Lake	Hyperthermic, coated Typic Quartzipsamments
*Lochloosa	Loamy, siliceous, hyperthermic Aquic Arenic Paleudults
*Micanopy	Fine, mixed, hyperthermic Aquic Paleudalfs
Millhopper	Loamy, siliceous, hyperthermic Grossarenic Paleudults
Myakka	Sandy, siliceous, hyperthermic Aeric Haplaquods
Narcoossee	Sandy, siliceous, hyperthermic Entic Haplohumods
Newnan	Sandy, siliceous, hyperthermic Ultic Haplohumods
Nobleton	Clayey, mixed, hyperthermic Aquic Arenic Paleudults
Okeelanta	Sandy or sandy-skeletal, siliceous, euic, hyperthermic Terric Medisaprists
Ona	Sandy, siliceous, hyperthermic Typic Haplaquods
Orlando	Sandy, siliceous, hyperthermic Quartzipsammentic Haplumbrepts
Paisley	Fine, montmorillonitic, hyperthermic Typic Albaqualfs
Palmetto	Loamy, siliceous, hyperthermic Grossarenic Palequults
Paola	Hyperthermic, uncoated Spodic Quartzipsamments
Pineda	Loamy, siliceous, hyperthermic Arenic Glossaqualfs
Placid	Sandy, siliceous, hyperthermic Typic Humaquepts
Pomello	Sandy, siliceous, hyperthermic Arenic Haplohumods
Pomona	Sandy, siliceous, hyperthermic Ultic Haplaquods
Pompano	Siliceous, hyperthermic Typic Psammaquents
Quartzipsamments	Quartzipsamments
Samsula	Sandy or sandy-skeletal, siliceous, dysic, hyperthermic Terric Medisaprists
Sellers	Sandy, siliceous, hyperthermic Cumulic Humaquepts
Smyrna	Sandy, siliceous, hyperthermic Aeric Haplaquods
Sparr	Loamy, siliceous, hyperthermic Grossarenic Paleudults
Tavares	Hyperthermic, uncoated Typic Quartzipsamments
Terra Ceia	Euic, hyperthermic Typic Medisaprists
Tomoka	Loamy, siliceous, dysic, hyperthermic Terric Medisaprists
Udalfic Arents	Udalfic Arents
Vero	Sandy over loamy, siliceous, hyperthermic Alfic Haplaquods
Vero Variant	Sandy over loamy, siliceous, hyperthermic Alfic Haplaquods
*Wauchula	Sandy, siliceous, hyperthermic Ultic Haplaquods
Weekiwachee	Euic, hyperthermic Typic Sulfihemists
Zephyr	Fine-loamy, siliceous, hyperthermic Typic Ochraquults
Zolfo	Sandy, siliceous, hyperthermic Grossarenic Entic Haplohumods

* The soil is a taxadjunct to the series. See text for a description of those characteristics of the soil that are outside the range of the series.

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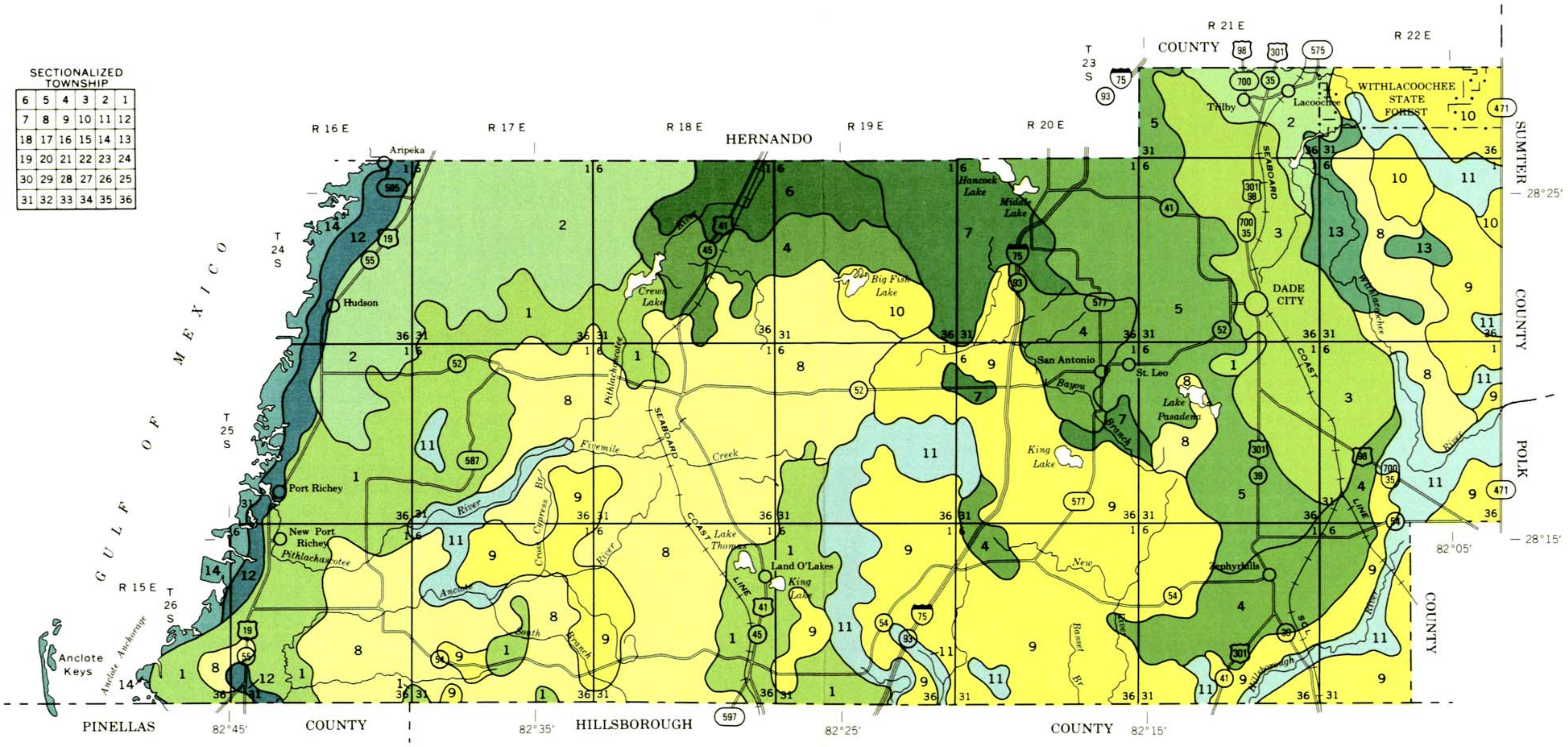


LEGEND

SOILS OF THE UPLAND RIDGES

1 Tavares-Adamsville-Narcoossee: Nearly level to gently sloping, moderately well drained and somewhat poorly drained soils that are sandy throughout; some have a dark-colored layer within a depth of 25 inches

2 Candler-Tavares-Paola: Nearly level to sloping, excessively drained and moderately well drained soils that are sandy throughout; some have thin lamellae of loamy sand below a depth of 50 inches

3 Lake-Candler: Nearly level to sloping, excessively drained soils that are sandy throughout; some have thin lamellae of loamy fine sand below a depth of 50 inches

4 Tavares-Sparr-Adamsville: Nearly level to sloping, moderately well drained and somewhat poorly drained soils; some are sandy throughout, and others are sandy to a depth of 40 to 80 inches and loamy below

5 Arredondo-Sparr-Kendrick: Nearly level to sloping, well drained and somewhat poorly drained soils that are sandy to a depth of 20 to more than 40 inches and loamy below

6 Millhopper-Candler Variant: Nearly level to gently sloping, moderately well drained and well drained soils; some are sandy throughout with lamellae of loamy fine sand below a depth of 50 inches, and others are sandy to a depth of 40 to 80 inches and loamy below

7 Nobleton-Blichton-Flemington Variant: Nearly level to sloping, somewhat poorly drained and poorly drained soils that are sandy to a depth of less than 40 inches and loamy or clayey below

SOILS OF THE FLATWOODS AND DEPRESSIONS

8 Smyrna-Sellers-Myakka: Nearly level, poorly drained and very poorly drained soils that are sandy throughout; some have a dark-colored subsoil within a depth of 30 inches, and some have a thick dark-colored surface layer

9 Pomona-EauGallie-Sellers: Nearly level, poorly drained and very poorly drained soils, some have subsoil that is dark colored and sandy within a depth of 30 inches and loamy below; some are sandy throughout and have a thick dark-colored surface layer

10 Basinger-Wauchula: Nearly level to gently sloping, poorly drained soils; some are sandy throughout; some have subsoil that is dark-colored and sandy within a depth of 30 inches and loamy below

SOILS OF THE SWAMPS, TIDAL MARSHES, AND RIVER FLOOD PLAINS

11 Chobee: Nearly level, very poorly drained soils that have a dark colored loamy surface layer less than 20 inches thick over calcareous loamy materials

12 Aripeka-Okeelanta-Terra Ceia: Nearly level, somewhat poorly drained and very poorly drained soils; some have sandy and loamy material 20 to 30 inches thick over limestone, some have organic material 16 to 40 inches thick over sandy material, and others have organic material more than 52 inches thick

13 Anclote-Tavares-Pomello: Nearly level to gently sloping, very poorly drained and moderately well drained soils that are sandy throughout; some have a thick dark-colored surface layer, and some have a dark-colored subsoil within a depth of 50 inches

14 Homosassa-Lacoochee-Weekiwachee: Nearly level, very poorly drained organic and mineral soils and nearly level, poorly drained sandy soils that are underlain by soft and hard limestone; subject to frequent tidal flooding

Compiled 1981

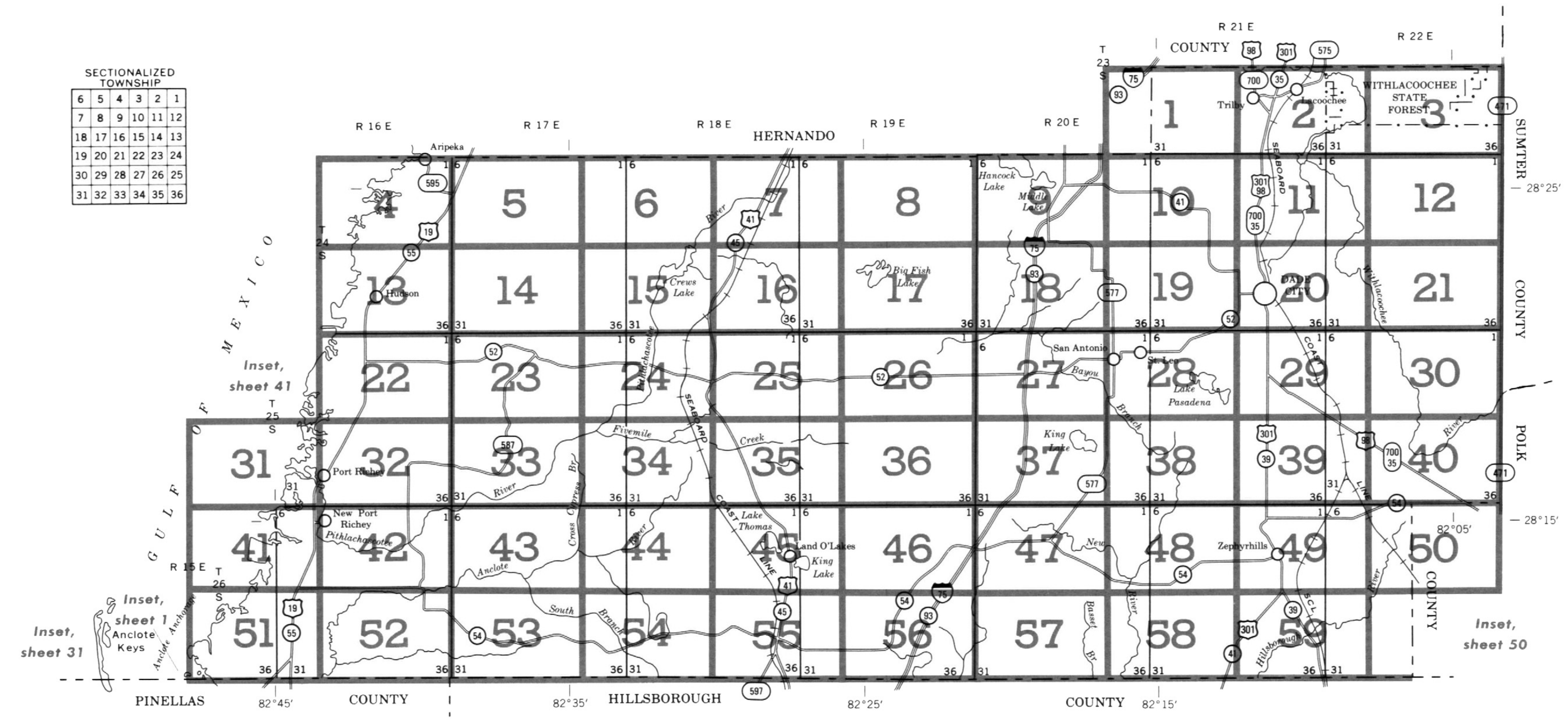
Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
UNIVERSITY OF FLORIDA
INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES
AGRICULTURAL EXPERIMENT STATIONS
SOIL SCIENCE DEPARTMENT

GENERAL SOIL MAP
PASCO COUNTY, FLORIDA

N

Scale 1:253,440
1 0 1 2 3 4 Miles
1 0 4 8 Km



INDEX TO MAP SHEETS
PASCO COUNTY, FLORIDA

N

Scale 1:253,440

1 0 1 2 3 4 Miles

1 0 4 8 Km

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PASCO COUNTY, FLORIDA

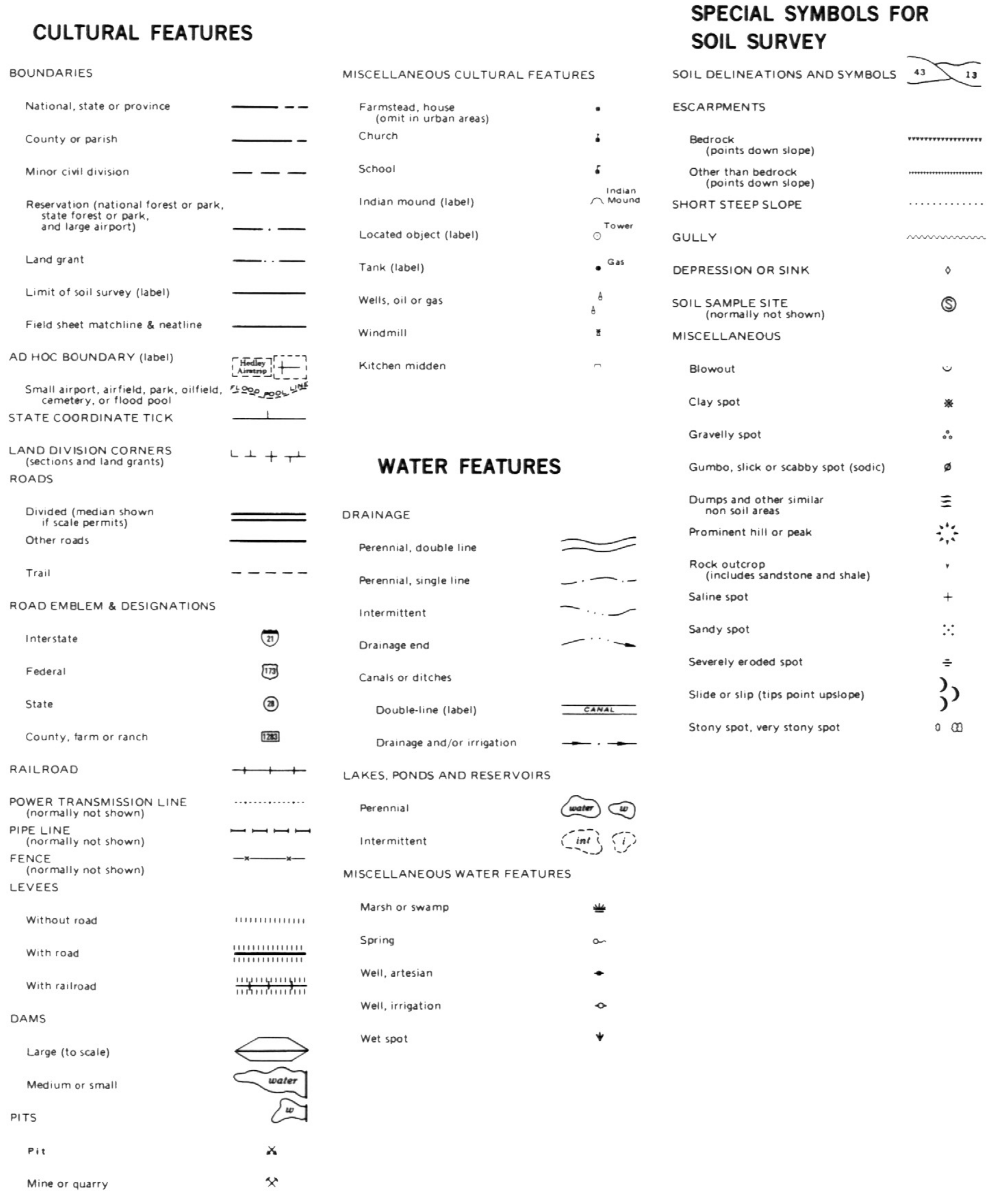
UNIVERSITY OF FLORIDA
INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES
AGRICULTURAL EXPERIMENT STATIONS
SOIL SCIENCE DEPARTMENT

SOIL LEGEND

The soil symbols are numeric. Soil names with a 1/ superscript after the name are mapped at less intensity (order 3) than the remainder of the units in the county. The superscript will not be used in the manuscript but the units will be described to reflect their nature.

SYMBOL	NAME
1	Wauchula fine sand, 0 to 5 percent slopes
2	Pomona fine sand
3	Pineda fine sand
4	Felda fine sand
5	Myakka fine sand
6	Tavares sand, 0 to 5 percent slopes
7	Sparr fine sand, 0 to 5 percent slopes
8	Sellers mucky loamy fine sand
9	Ona fine sand
10	Vero fine sand
11	Adamsville fine sand
12	Astatula fine sand, 0 to 5 percent slopes
13	Candler fine sand, 0 to 5 percent slopes
14	Candler fine sand, 5 to 8 percent slopes
15	Tavares-Urban land complex, 0 to 5 percent slopes
16	Zephyr muck
17	Immokalee fine sand
18	Electra Variant fine sand, 0 to 5 percent slopes
19	Paola fine sand, 0 to 8 percent slopes
20	Aripeka fine sand
21	Smyrna fine sand
22	Basinger fine sand
23	Basinger fine sand, depressional
24	Quartzipsamments, shaped, 0 to 5 percent slopes
25	Jonesville fine sand, 0 to 5 percent slopes
26	Narcoossee fine sand
27	Anclote fine sand
28	Pits
29	Lacoochee complex
30	Okeelanta-Terra Ceia association 1/
31	Udalfic Arents-Urban land complex
32	Lake fine sand, 0 to 5 percent slopes
34	Pompano fine sand
35	EauGallie fine sand
36	Candler-Urban land complex, 0 to 8 percent slopes
37	Paola-Urban land complex, 0 to 8 percent slopes
38	Urban land
39	Chobee soils, frequently flooded 1/
40	Paisley fine sand
41	Pits-Dumps complex
42	Pomello fine sand, 0 to 5 percent slopes
43	Arredondo fine sand, 0 to 5 percent slopes
44	Arredondo fine sand, 5 to 8 percent slopes
45	Kendrick fine sand, 0 to 5 percent slopes
46	Cassia fine sand, 0 to 5 percent slopes
47	Weekiwachee muck
48	Lochloosa fine sand, 0 to 5 percent slopes
49	Blichton fine sand, 0 to 2 percent slopes
50	Blichton fine sand, 2 to 5 percent slopes
51	Blichton fine sand, 5 to 8 percent slopes
52	Samsula muck
53	Sparr fine sand, 5 to 8 percent slopes
54	Flemington Variant fine sand, 2 to 5 percent slopes
55	Homosassa mucky fine sandy loam
56	EauGallie-Urban land complex
57	Vero Variant fine sand
58	Tomoka muck
59	Newnan fine sand, 0 to 5 percent slopes
60	Palmetto-Zephyr-Sellers complex
61	Pompano fine sand, frequently flooded
62	Kendrick fine sand, 5 to 8 percent slopes
63	Delray mucky fine sand
64	Nobleton fine sand, 0 to 5 percent slopes
65	Gainesville loamy fine sand, 0 to 5 percent slopes
66	Micanopy fine sand, 2 to 5 percent slopes
67	Kanapaha fine sand, 0 to 5 percent slopes
68	Lake fine sand, 5 to 8 percent slopes
69	Millhopper fine sand, 0 to 5 percent slopes
70	Placid fine sand
71	Anclote-Tavares-Pomello association, flooded 1/
72	Orlando fine sand, 0 to 5 percent slopes
73	Zolfo fine sand
74	Candler Variant fine sand, 0 to 5 percent slopes
75	Beaches
76	Bessie muck

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND



CULTURAL FEATURES

BOUNDARIES

- National, state or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park, and large airport)
- Land grant
- Limit of soil survey (label)
- Field sheet matchline & neatline

AD HOC BOUNDARY (label)

- Small airport, airfield, park, oilfield, cemetery, or flood pool

STATE COORDINATE TICK

LAND DIVISION CORNERS (sections and land grants)

ROADS

- Divided (median shown if scale permits)
- Other roads
- Trail

ROAD EMBLEM & DESIGNATIONS

- Interstate
- Federal
- State
- County, farm or ranch

RAILROAD

POWER TRANSMISSION LINE (normally not shown)

PIPE LINE (normally not shown)

FENCE (normally not shown)

LEVEES

- Without road
- With road
- With railroad

DAMS

- Large (to scale)
- Medium or small

PITS

- Pit
- Mine or quarry

MISCELLANEOUS CULTURAL FEATURES

- Farmstead, house (omit in urban areas)
- Church
- School
- Indian mound (label)
- Located object (label)
- Tank (label)
- Wells, oil or gas
- Windmill
- Kitchen midden

WATER FEATURES

DRAINAGE

- Perennial, double line
- Perennial, single line
- Intermittent
- Drainage end
- Canals or ditches
  - Double-line (label)
  - Drainage and/or irrigation

LAKES, PONDS AND RESERVOIRS

- Perennial
- Intermittent

MISCELLANEOUS WATER FEATURES

- Marsh or swamp
- Spring
- Well, artesian
- Well, irrigation
- Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS

ESCARPMENTS

- Bedrock (points down slope)
- Other than bedrock (points down slope)

SHORT STEEP SLOPE

GULLY

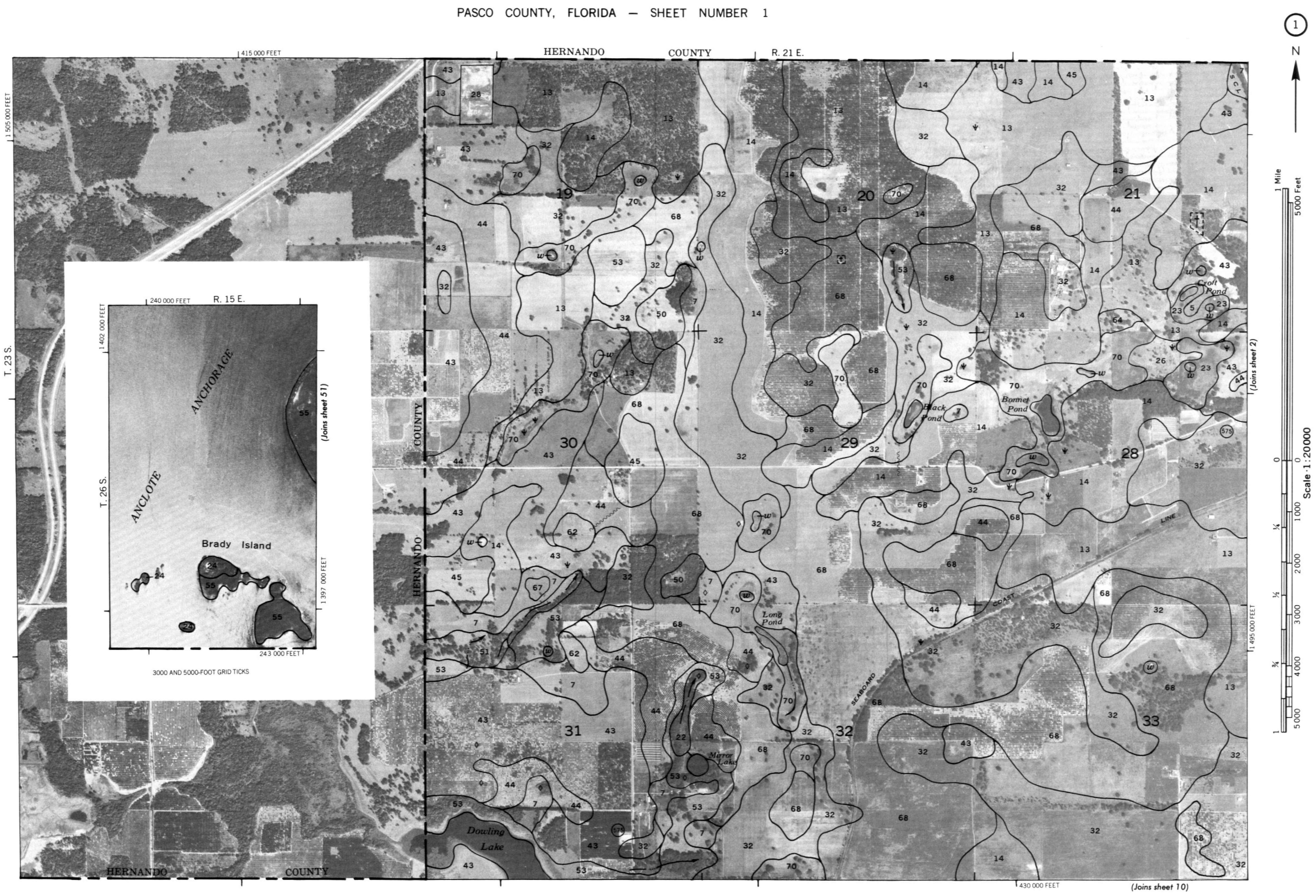
DEPRESSION OR SINK

SOIL SAMPLE SITE (normally not shown)

MISCELLANEOUS

- Blowout
- Clay spot
- Gravelly spot
- Gumbo, slick or scabby spot (sodic)
- Dumps and other similar non soil areas
- Prominent hill or peak
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip (tips point upslope)
- Stony spot, very stony spot

PASCO COUNTY, FLORIDA — SHEET NUMBER 1



This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

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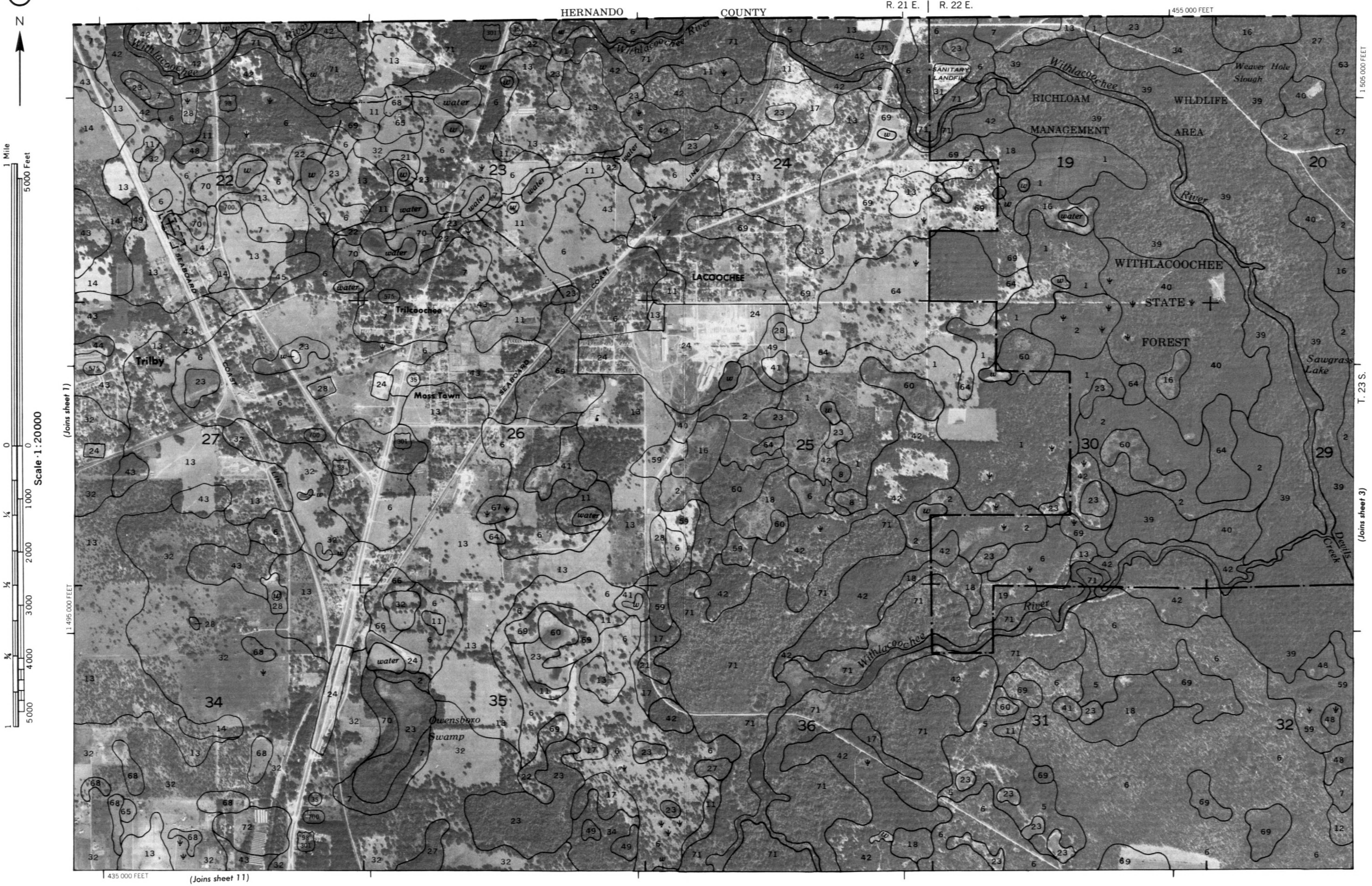
PASCO COUNTY, FLORIDA — SHEET NUMBER 2



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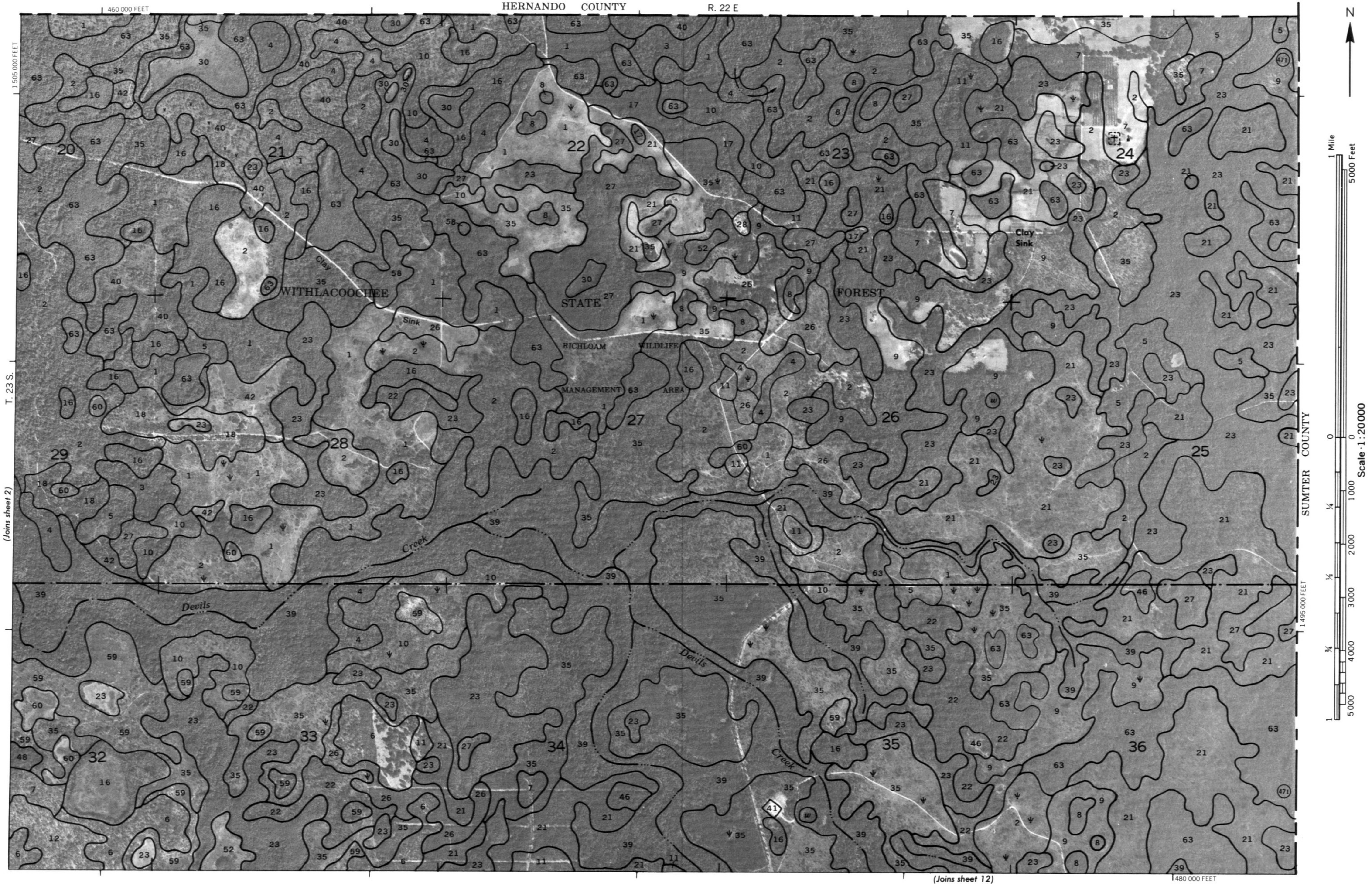
PASCO COUNTY, FLORIDA — SHEET NUMBER 3



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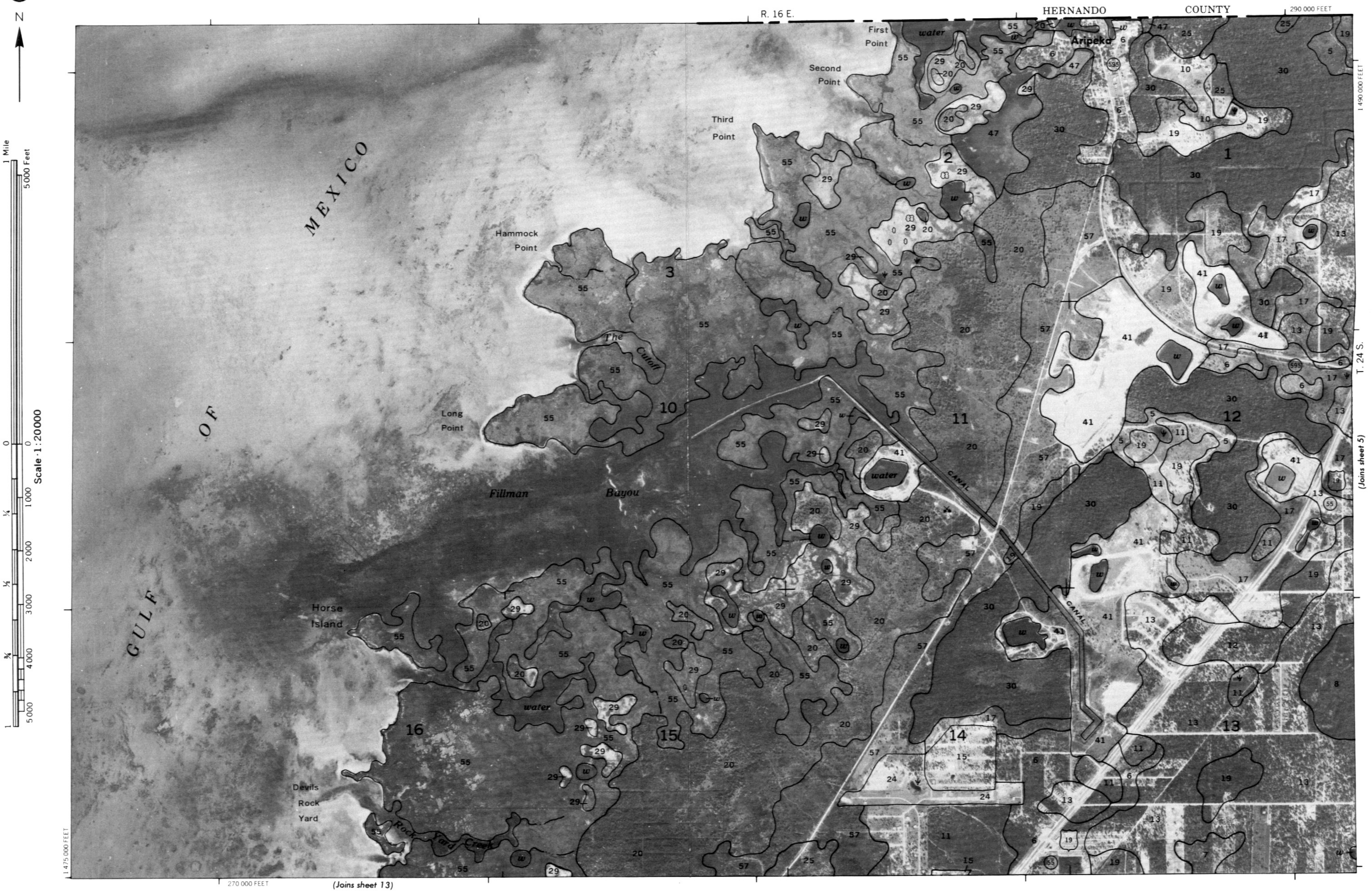
PASCO COUNTY, FLORIDA — SHEET NUMBER 4



PASCO COUNTY, FLORIDA — SHEET NUMBER 5

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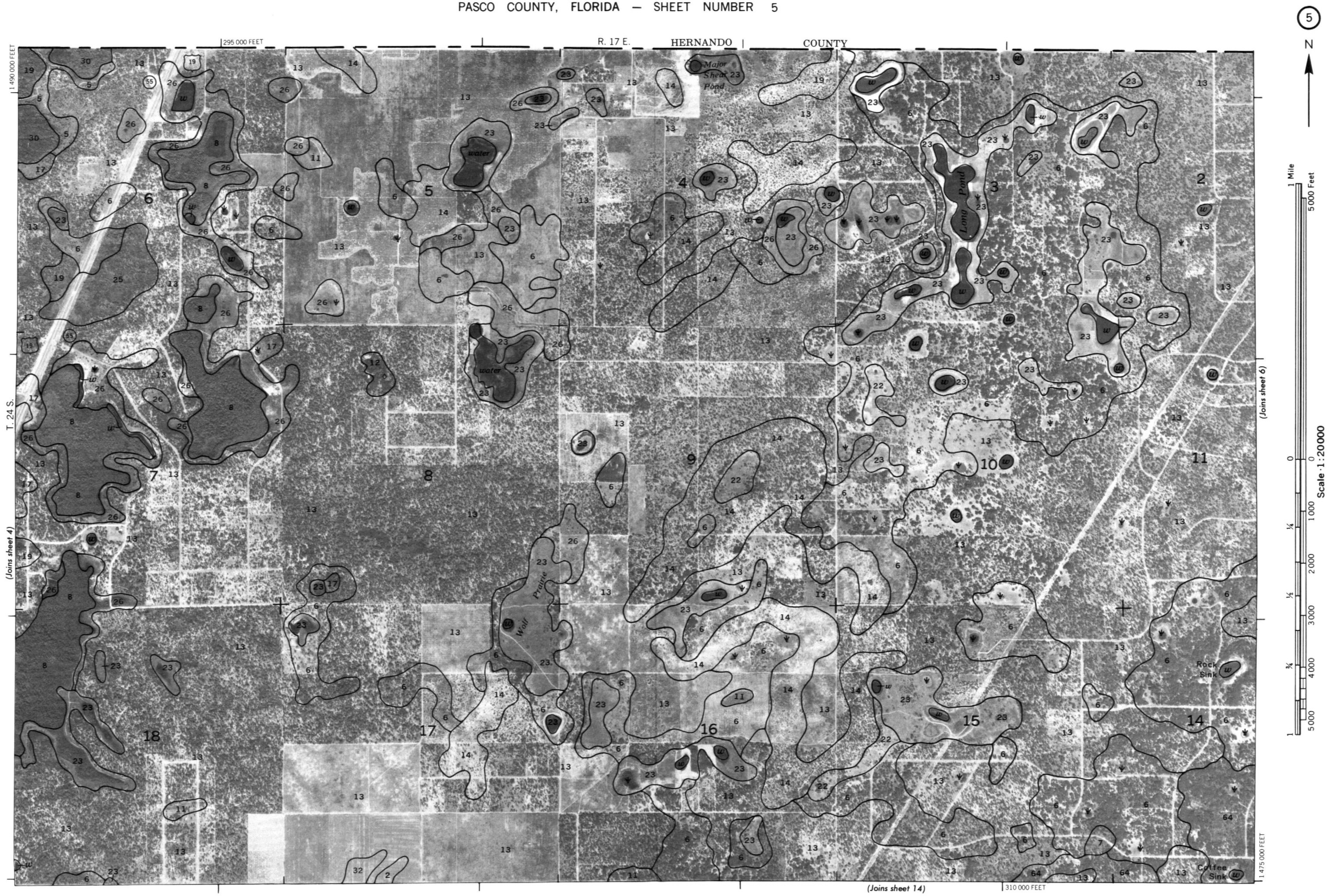

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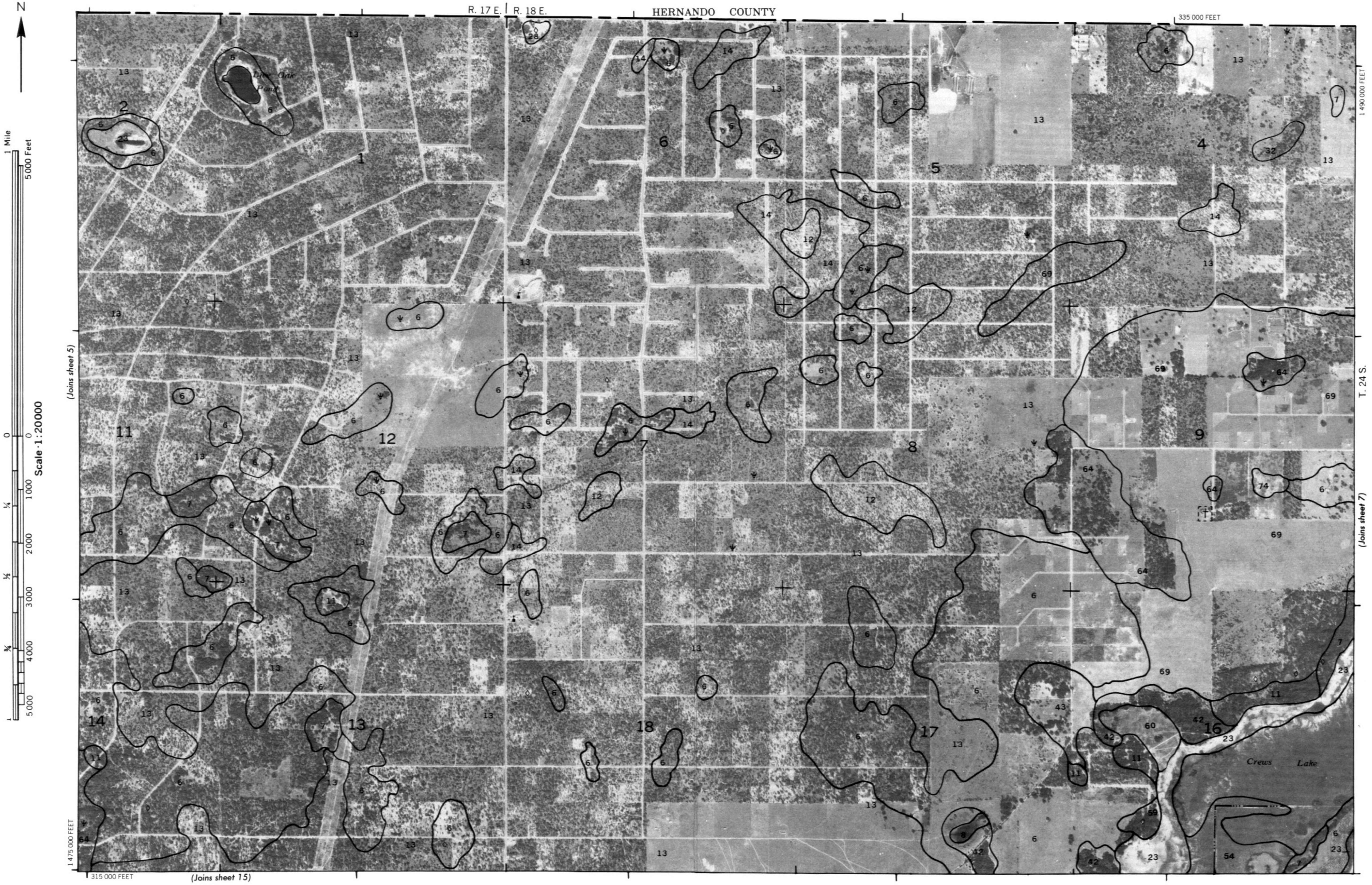

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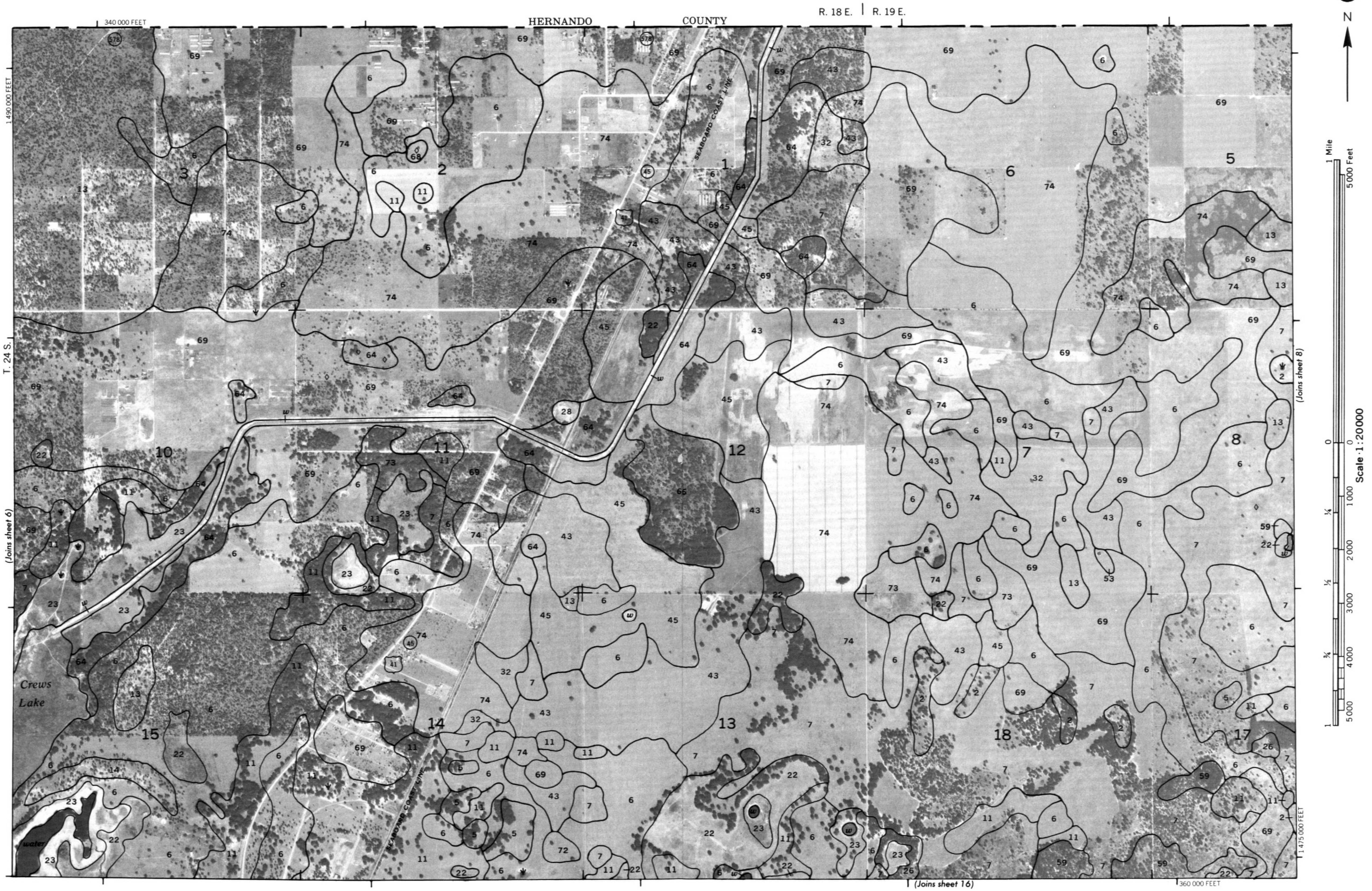
PASCO COUNTY, FLORIDA — SHEET NUMBER 7

This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



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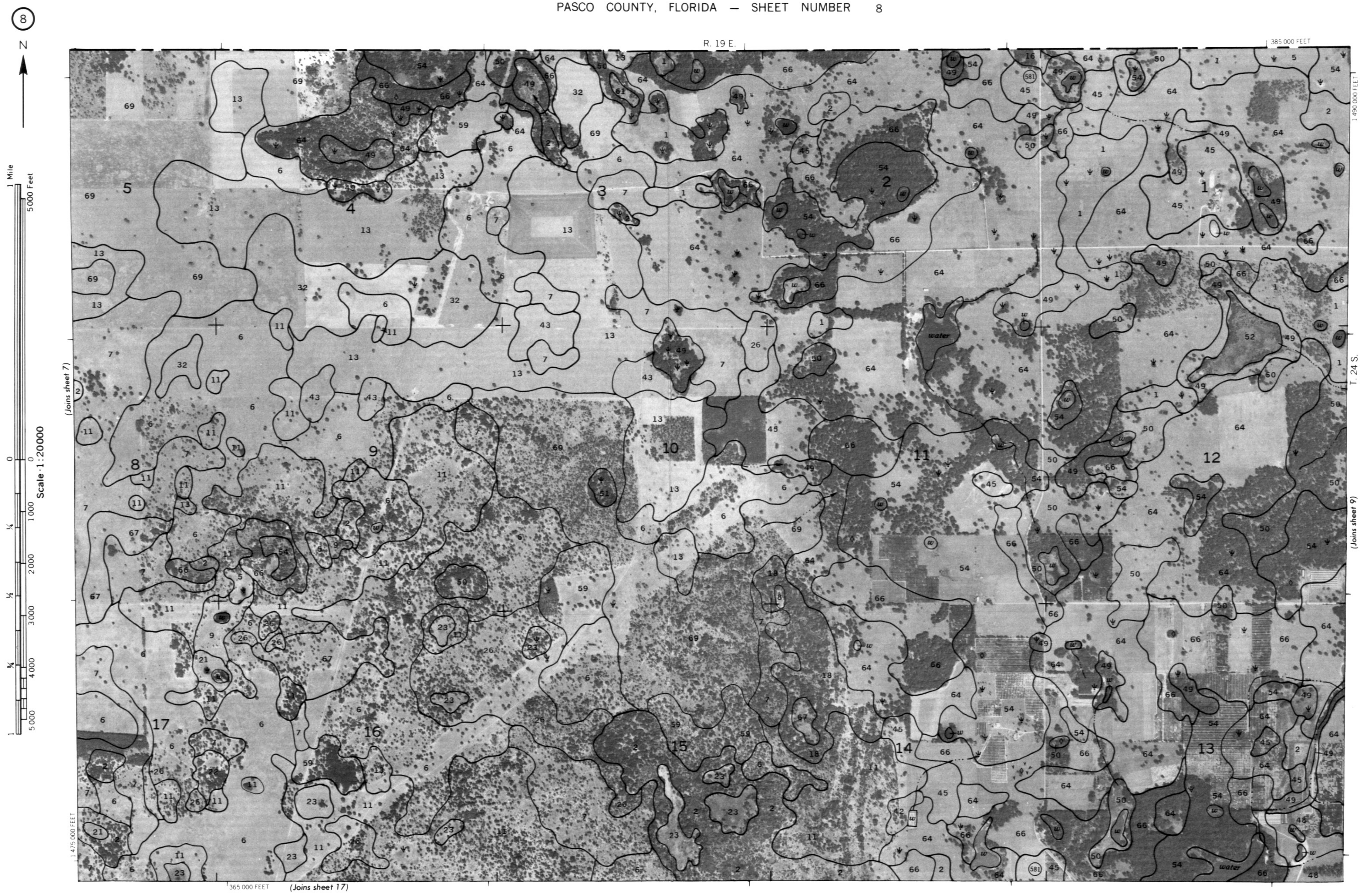

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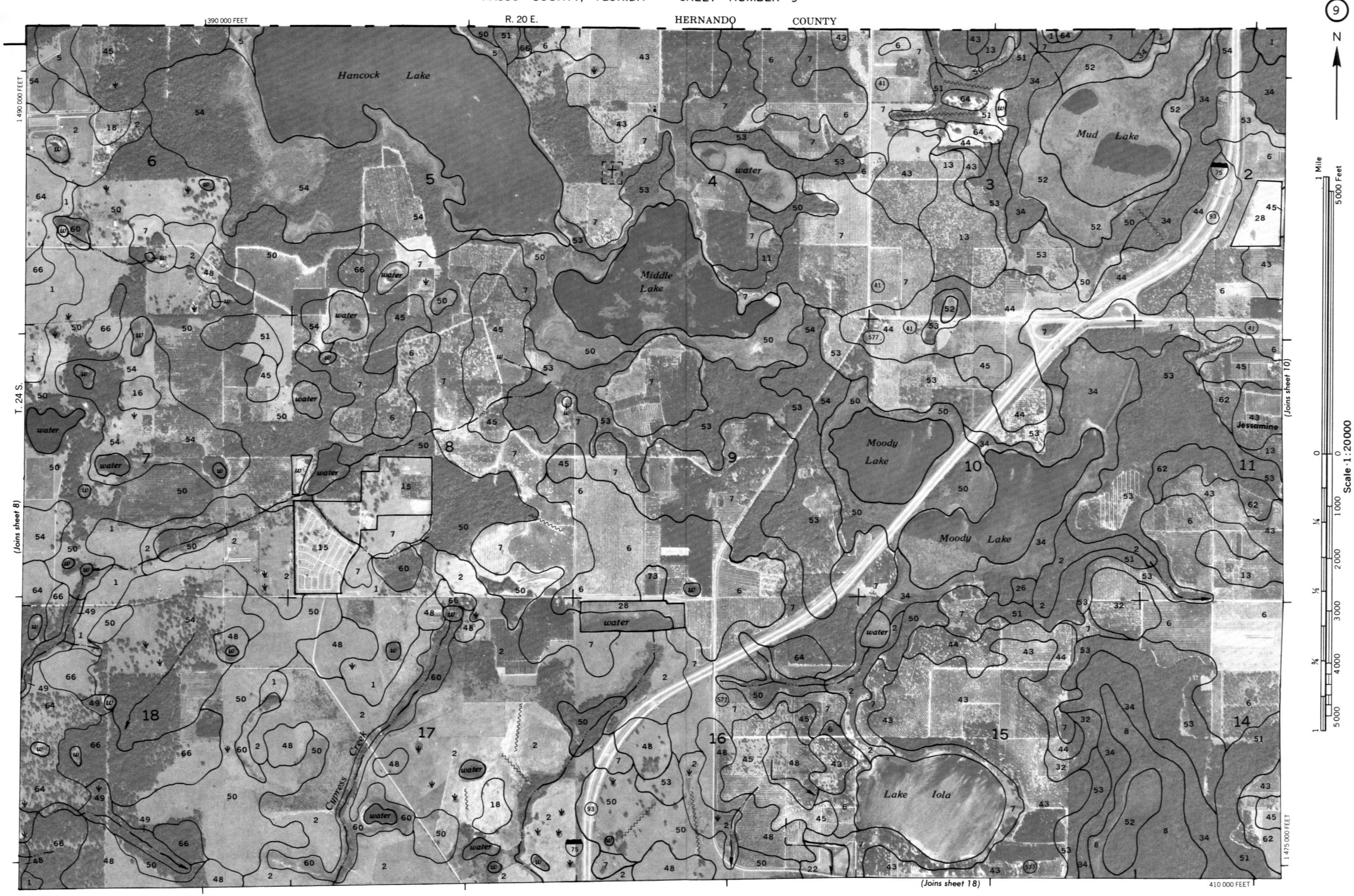
PASCO COUNTY, FLORIDA — SHEET NUMBER 9



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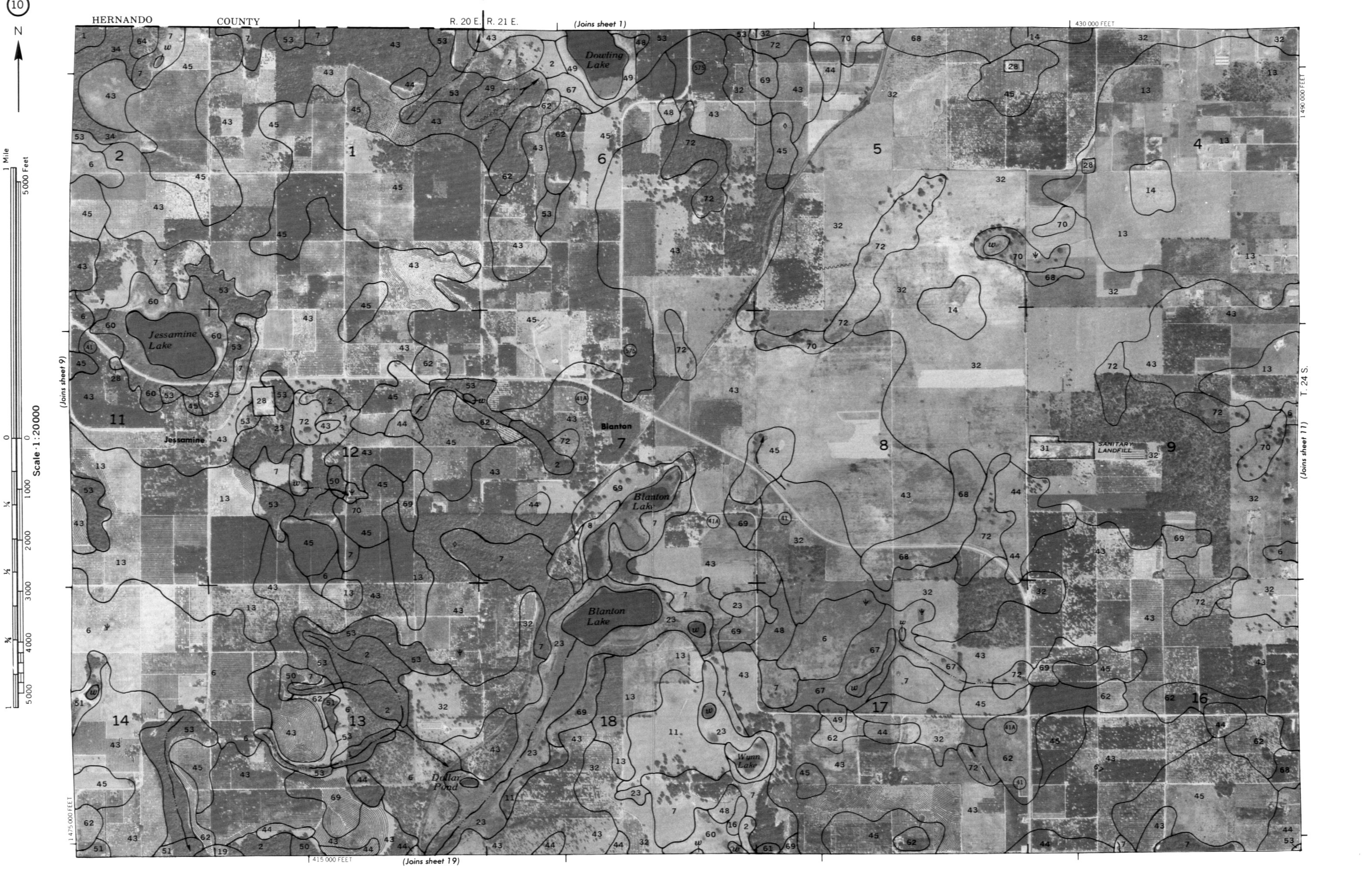
PASCO COUNTY, FLORIDA — SHEET NUMBER 10



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PASCO COUNTY, FLORIDA — SHEET NUMBER 11

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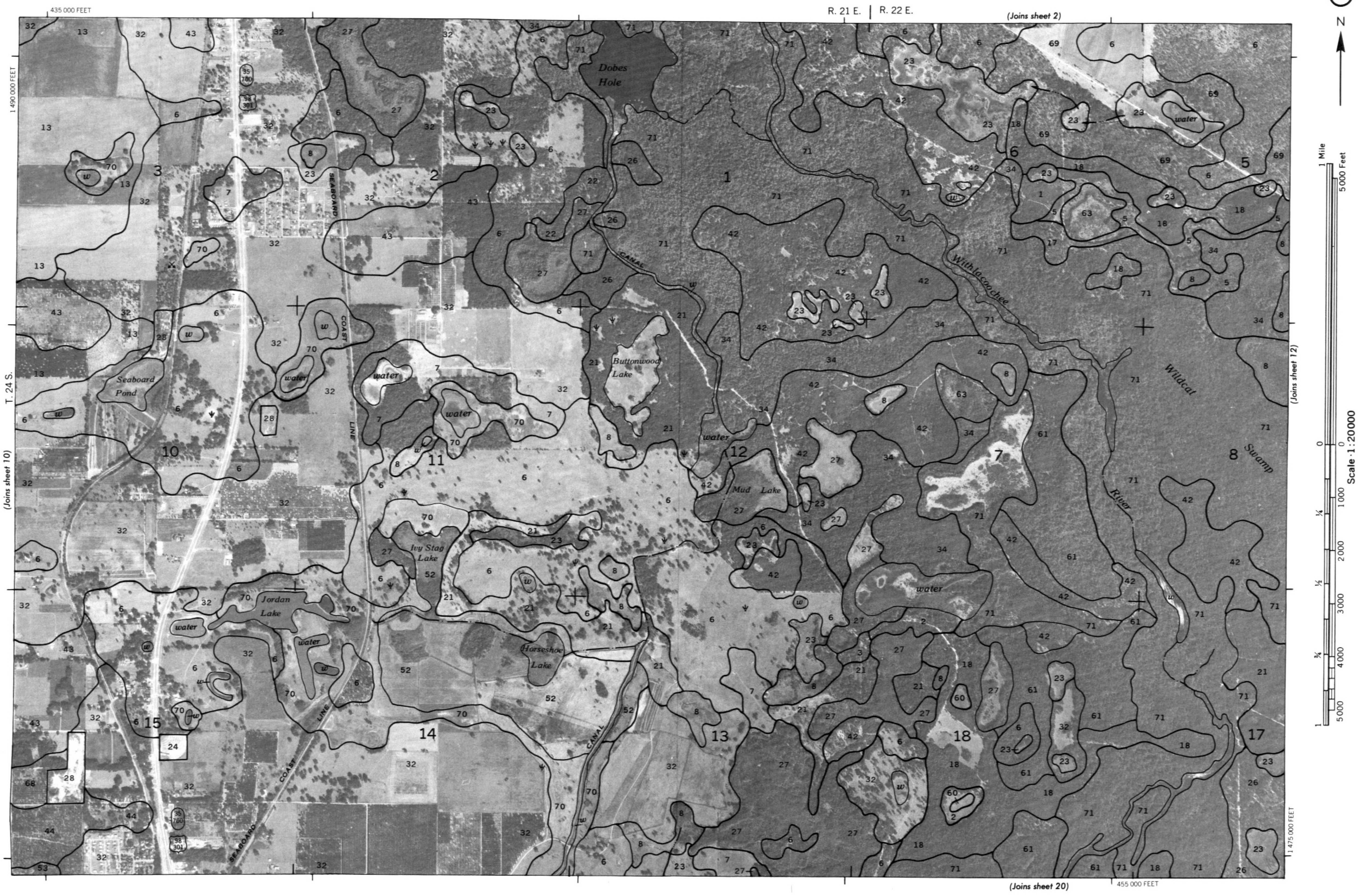
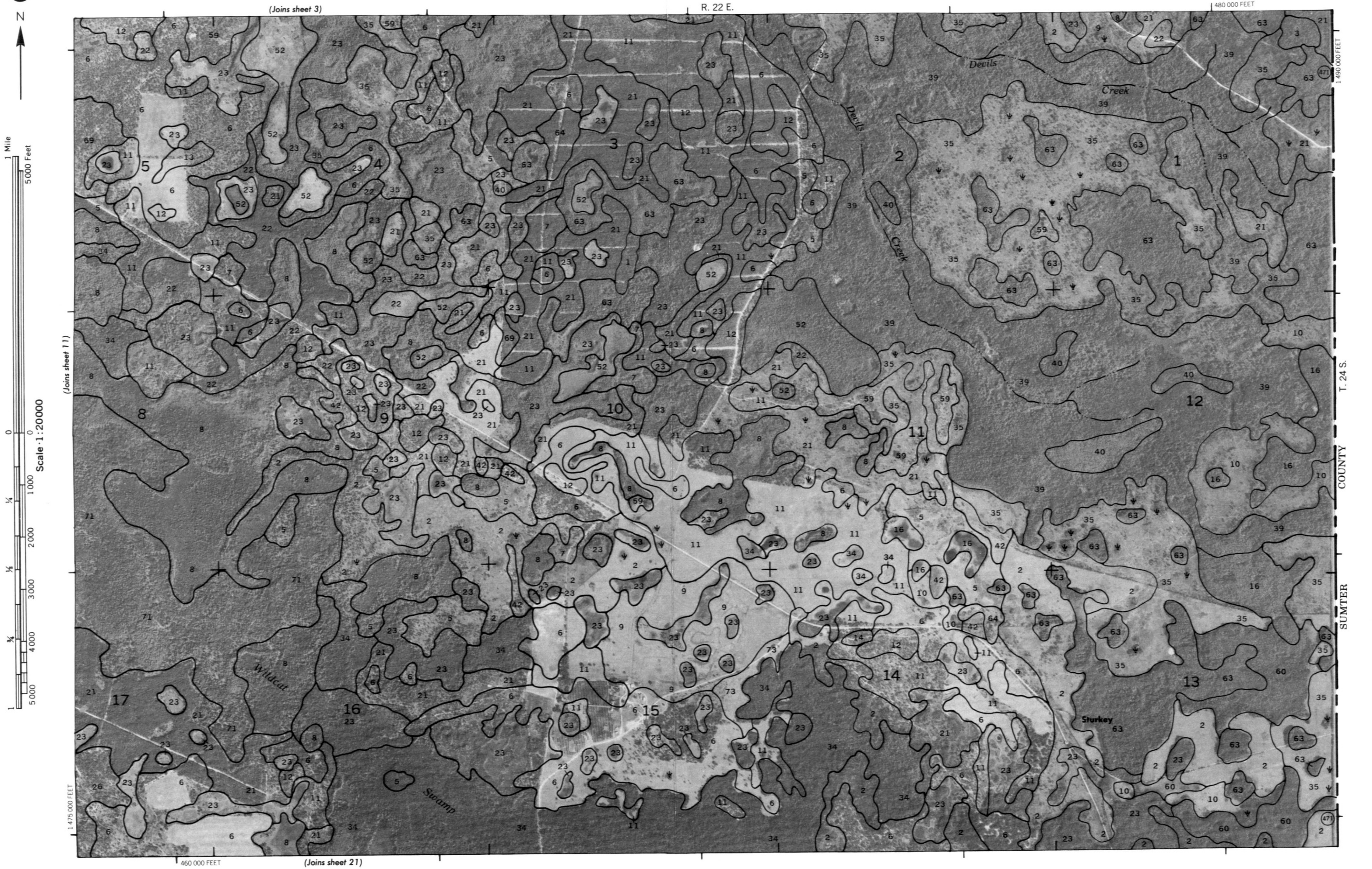


PASCO COUNTY, FLORIDA — SHEET NUMBER 12



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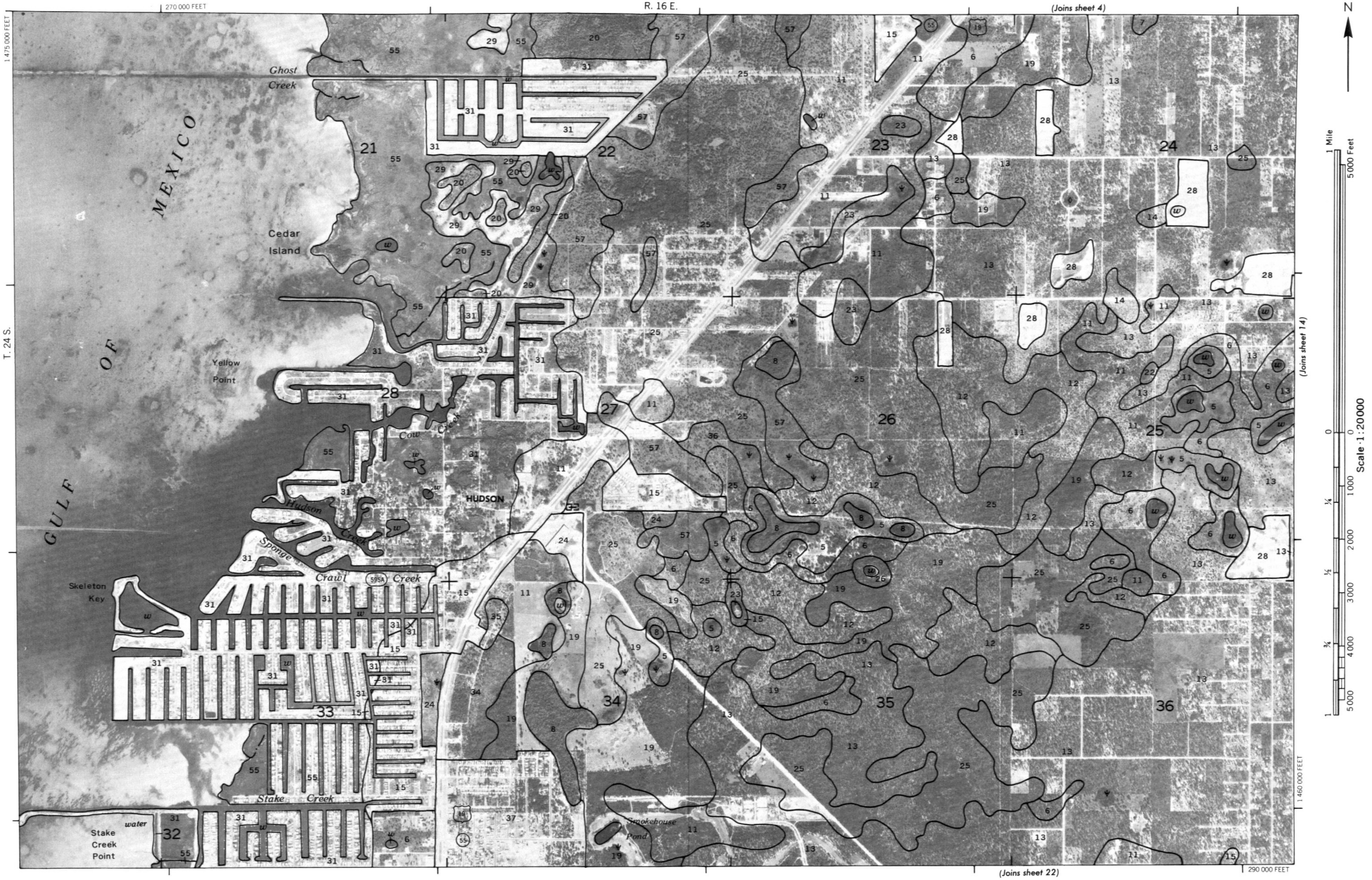

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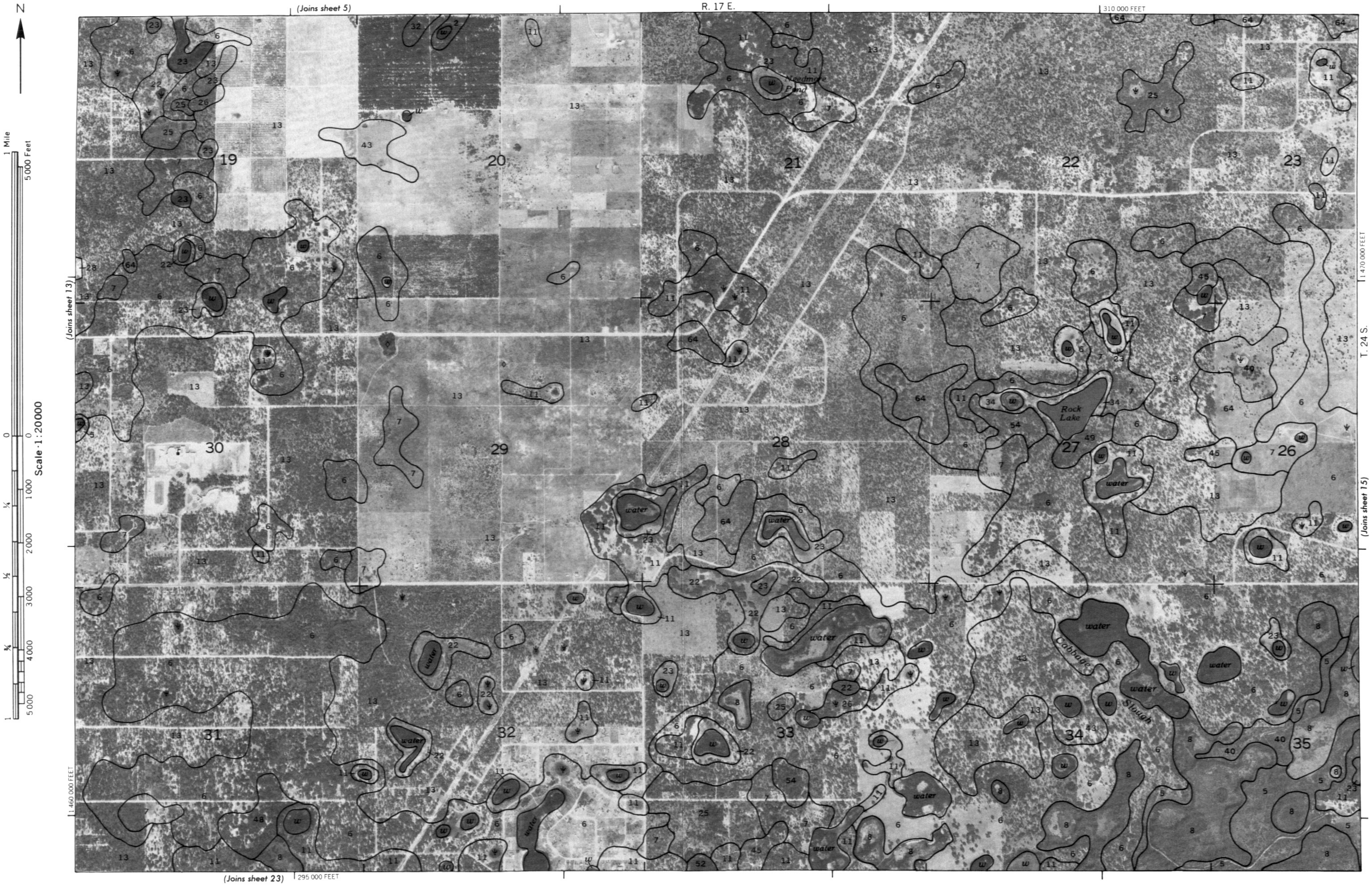
PASCO COUNTY, FLORIDA — SHEET NUMBER 14



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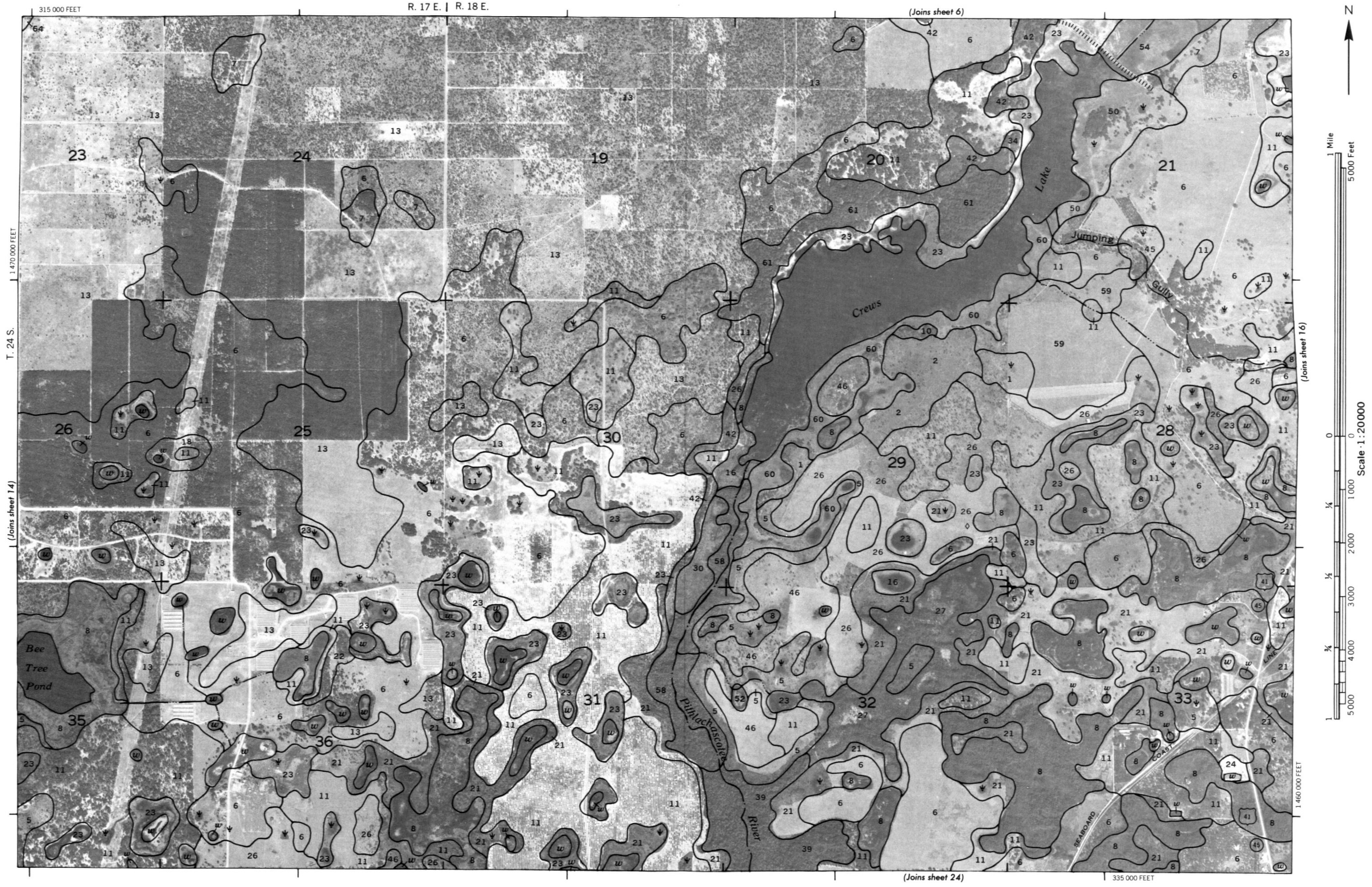
PASCO COUNTY, FLORIDA — SHEET NUMBER 15



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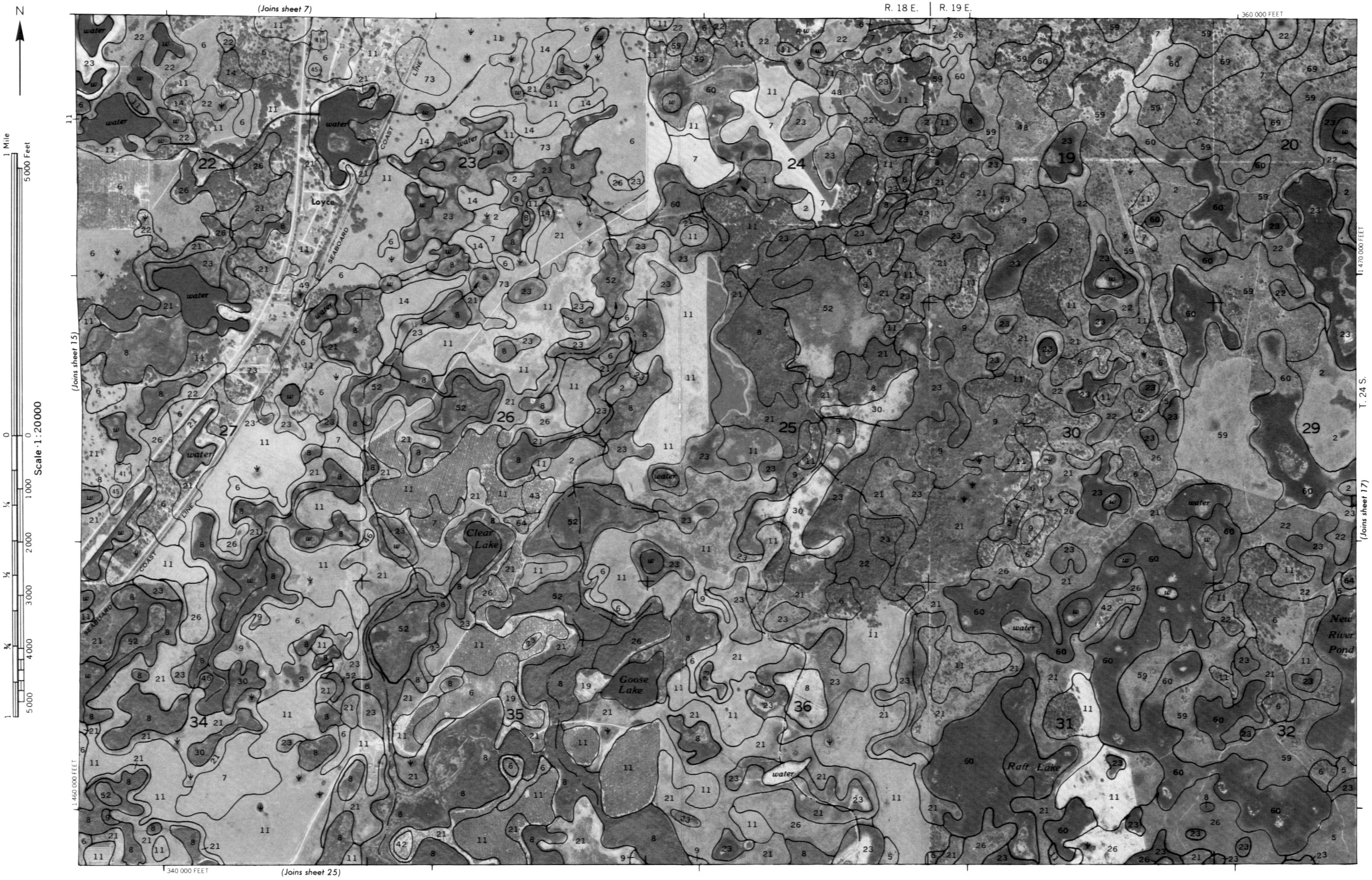
PASCO COUNTY, FLORIDA — SHEET NUMBER 16



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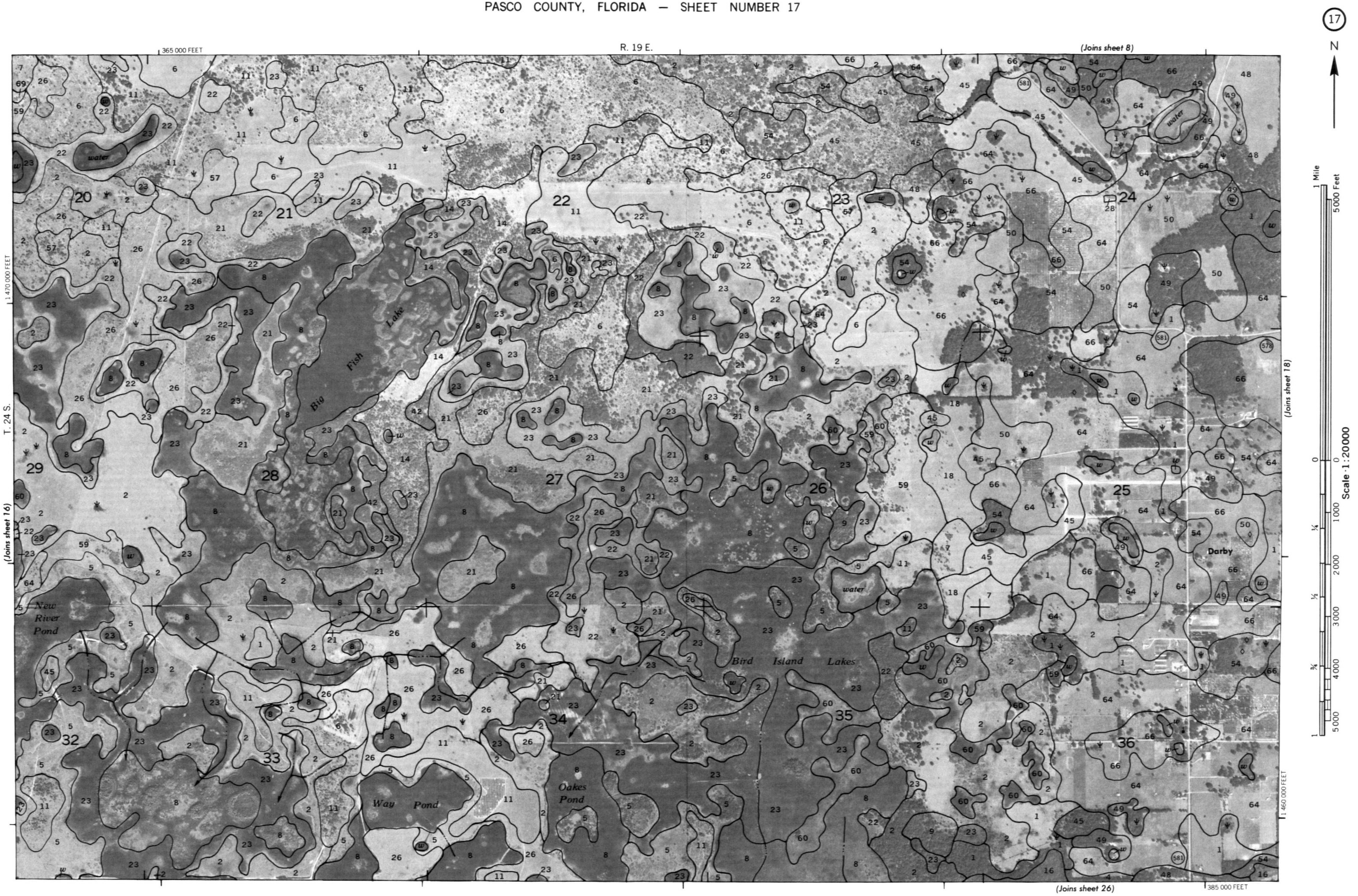
PASCO COUNTY, FLORIDA — SHEET NUMBER 17



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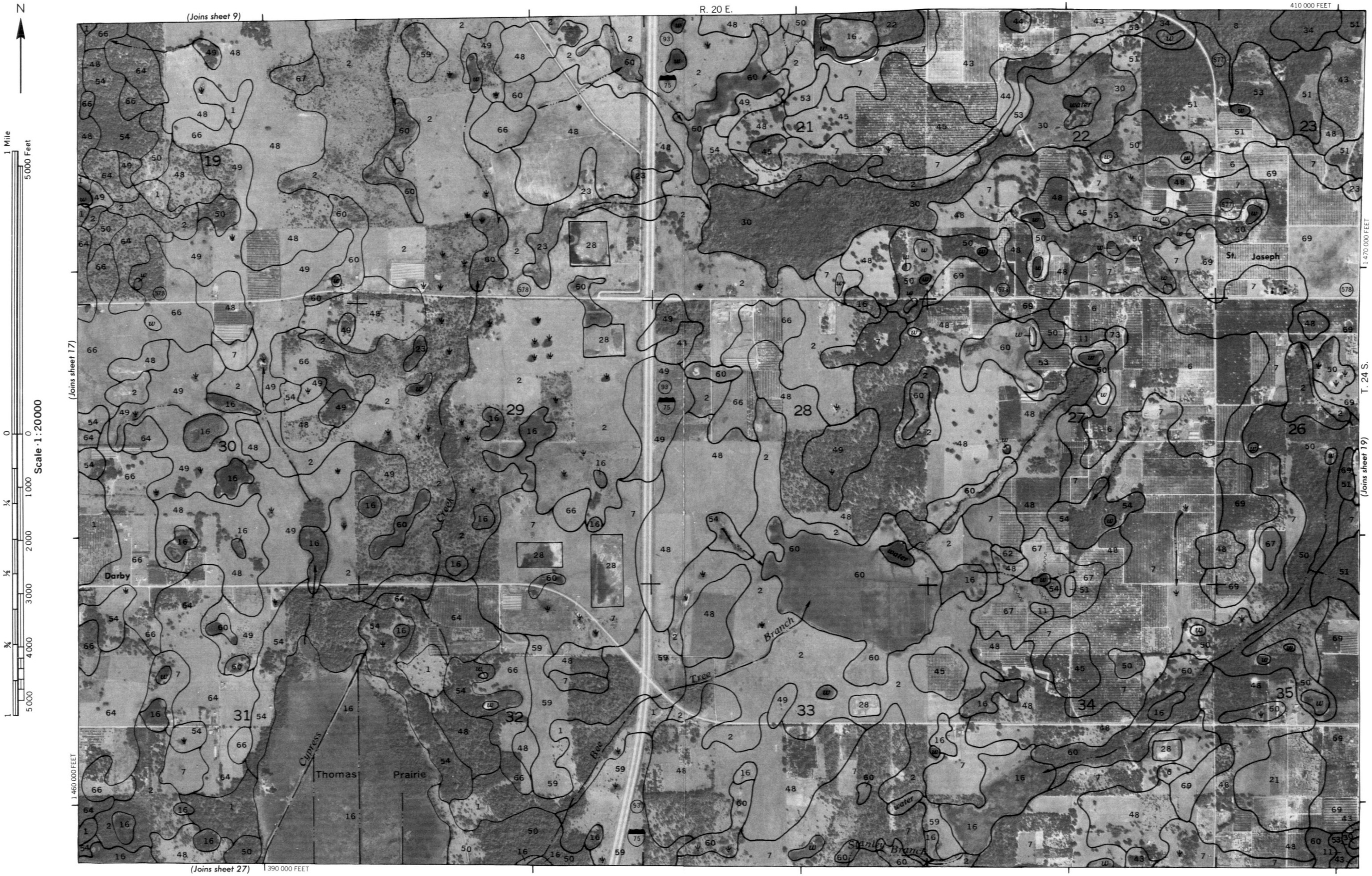
PASCO COUNTY, FLORIDA — SHEET NUMBER 18



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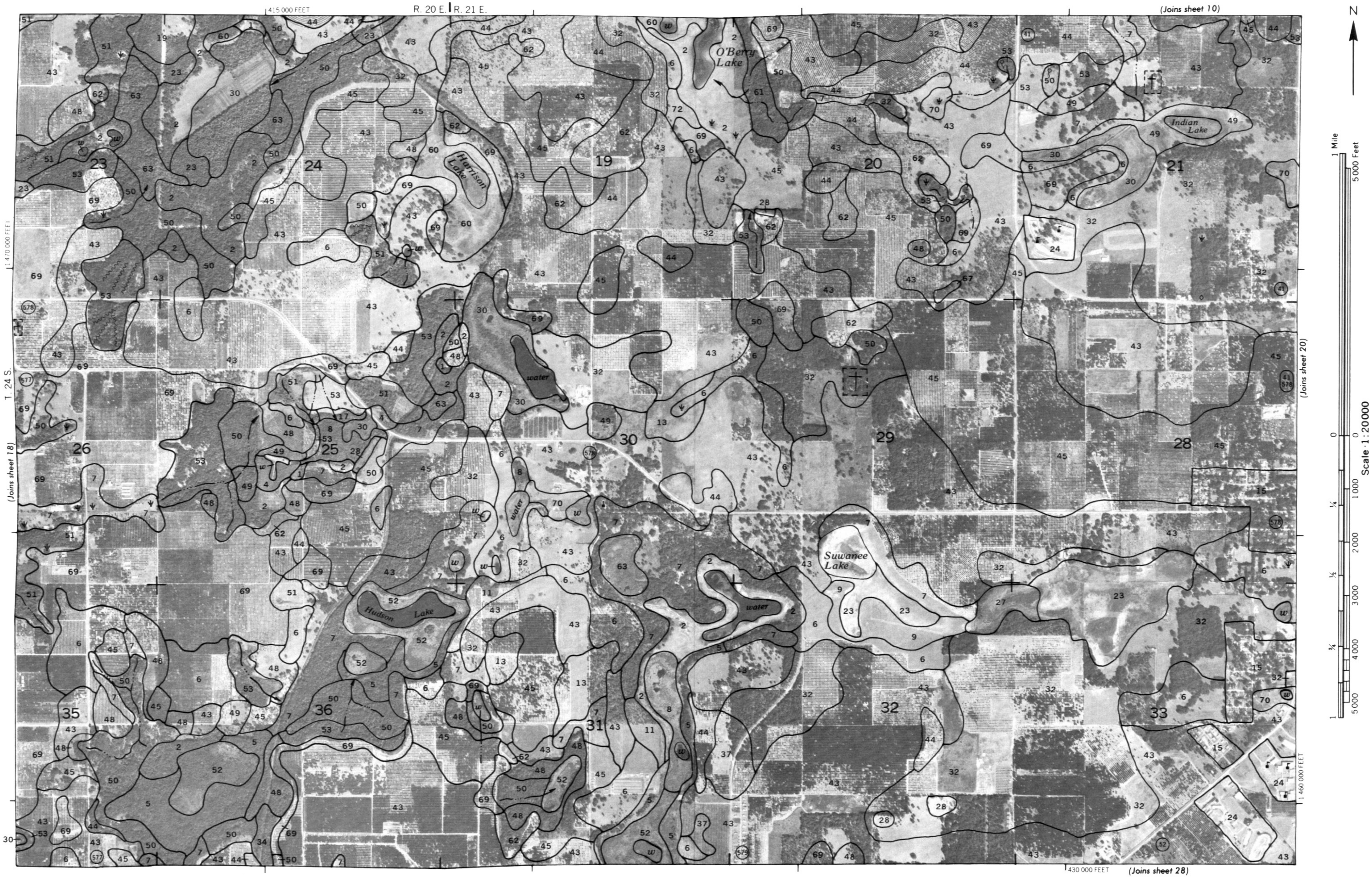
PASCO COUNTY, FLORIDA — SHEET NUMBER 19



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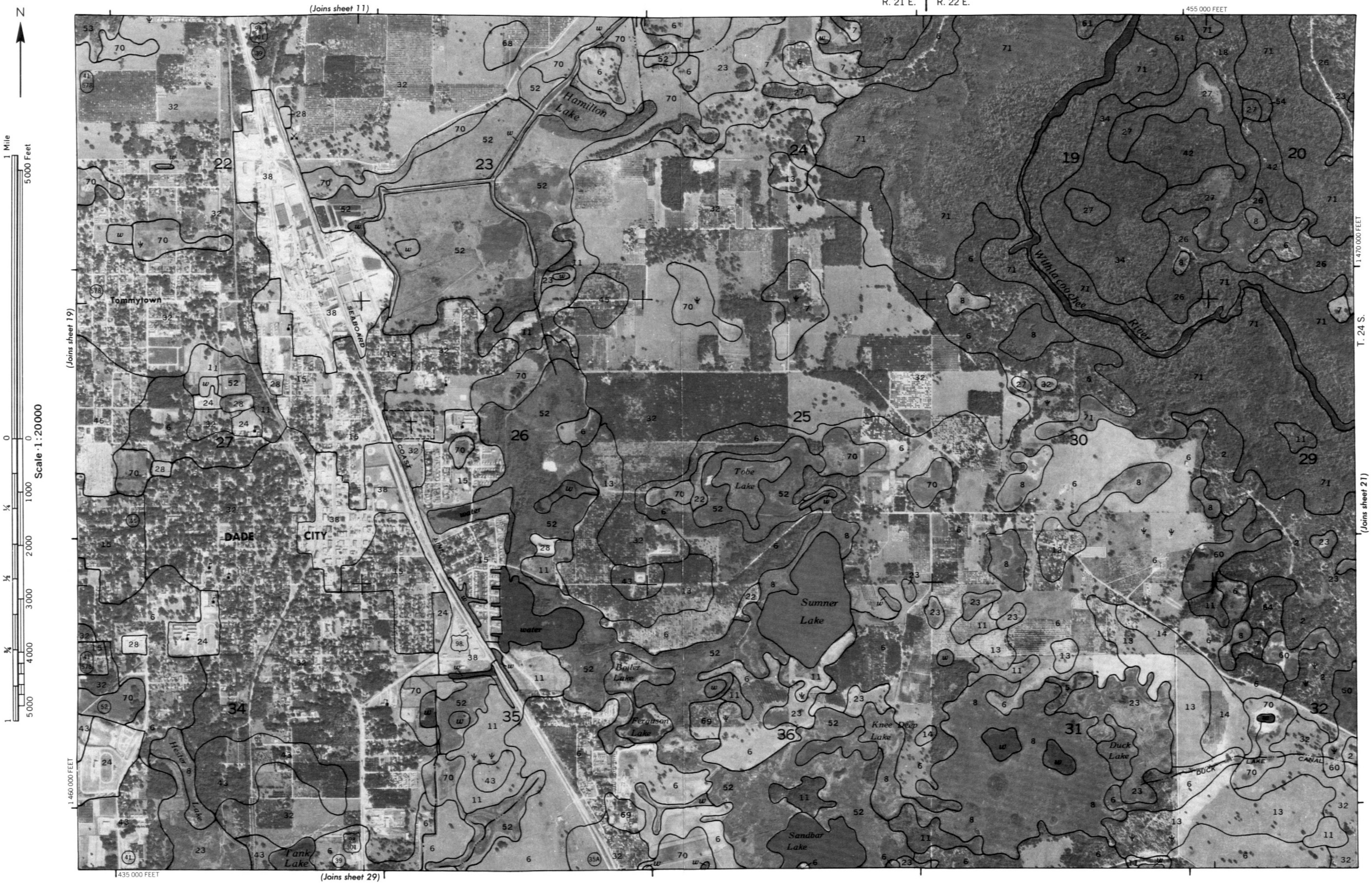
PASCO COUNTY, FLORIDA — SHEET NUMBER 20



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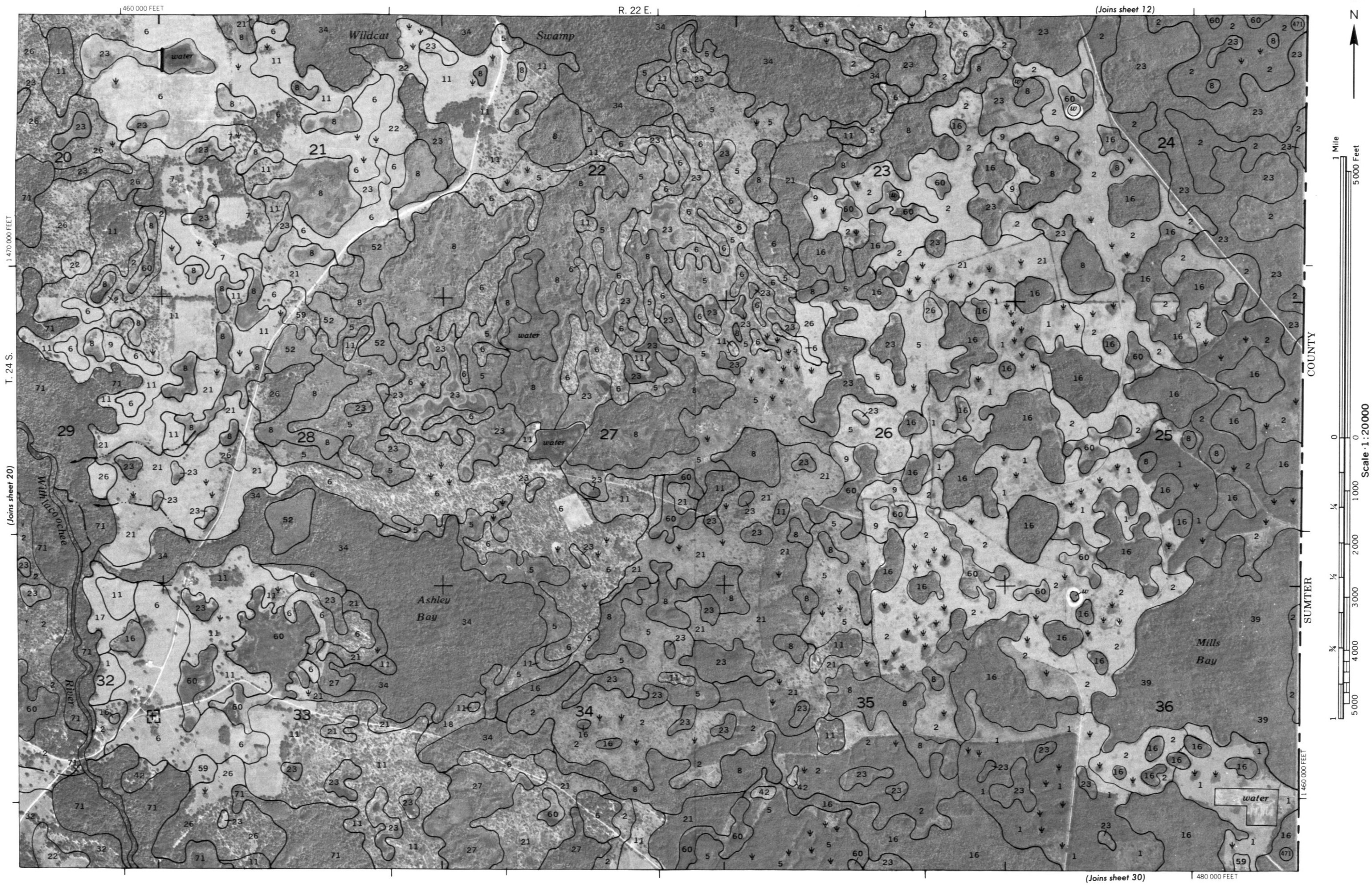

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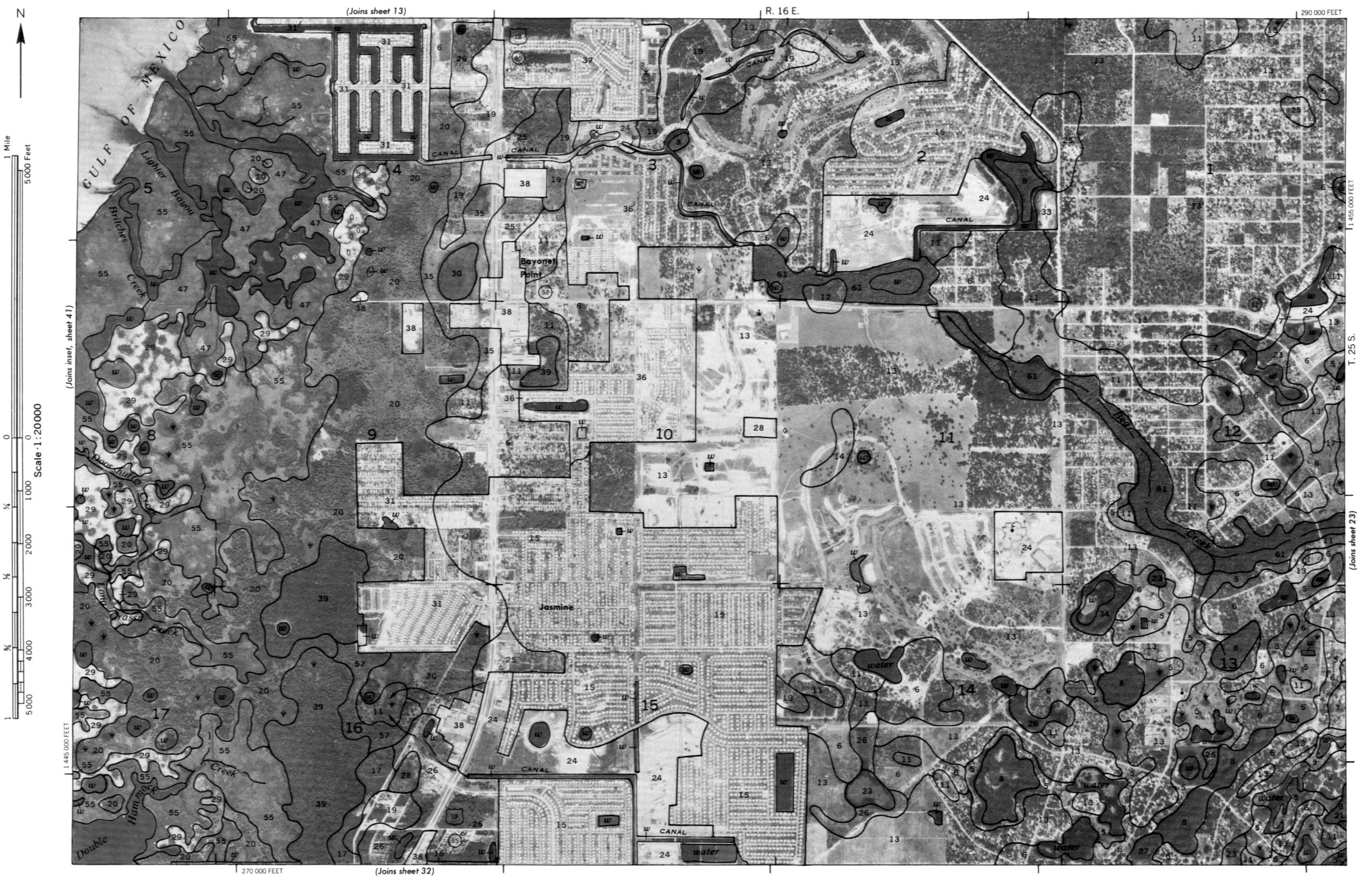
PASCO COUNTY, FLORIDA — SHEET NUMBER 22



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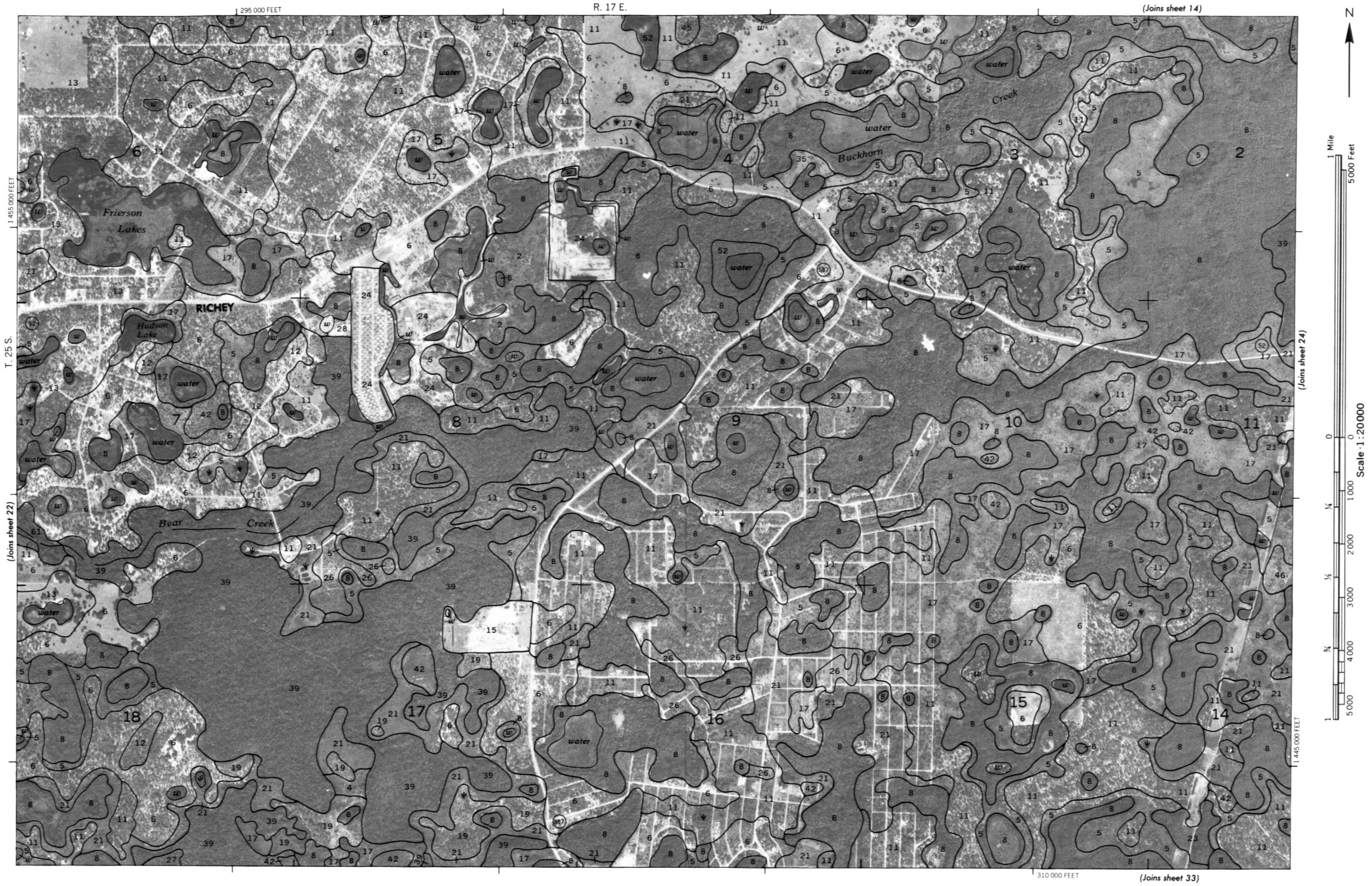
PASCO COUNTY, FLORIDA — SHEET NUMBER 23



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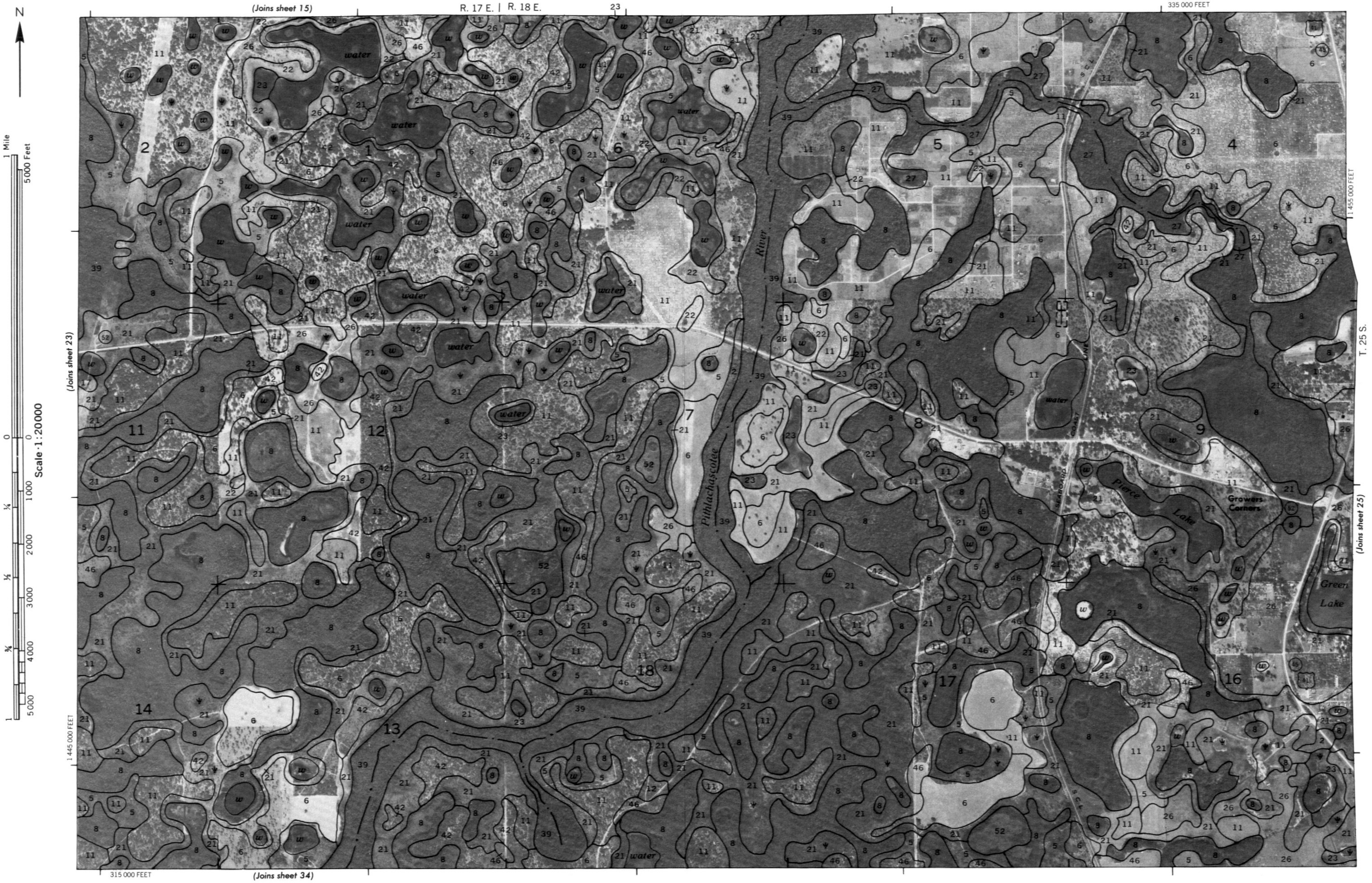
PASCO COUNTY, FLORIDA — SHEET NUMBER 24



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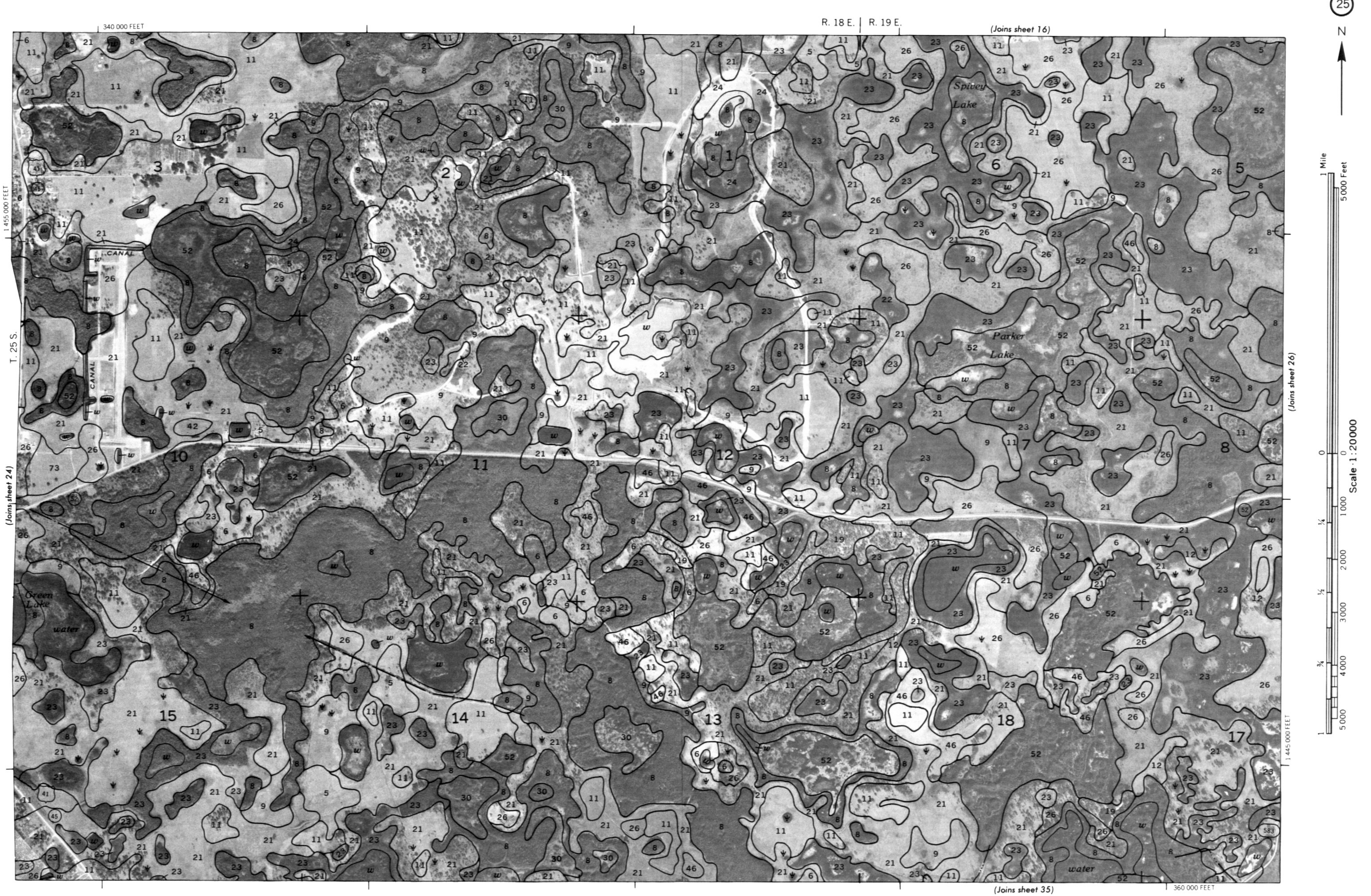
PASCO COUNTY, FLORIDA — SHEET NUMBER 25



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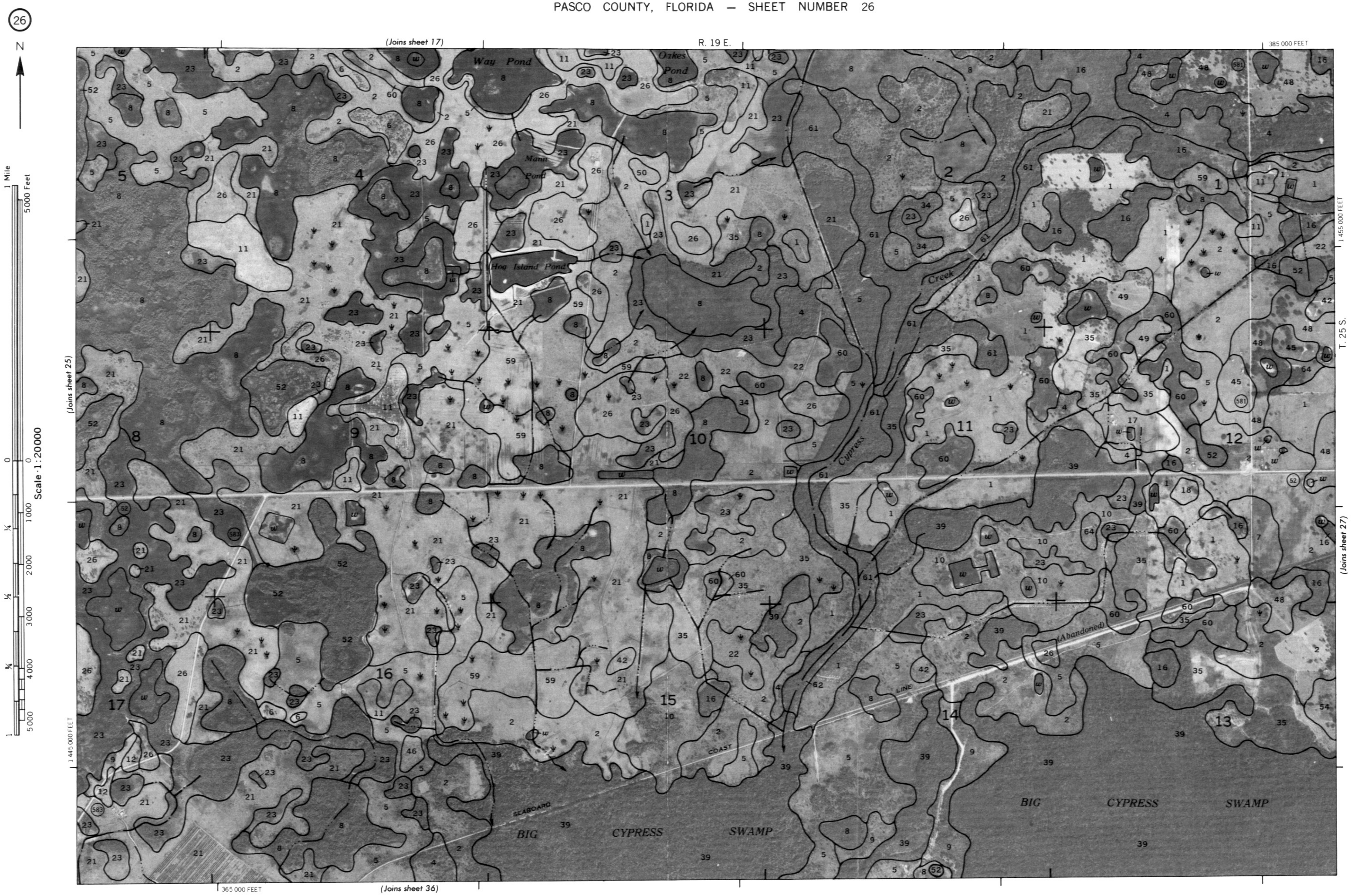
PASCO COUNTY, FLORIDA — SHEET NUMBER 26



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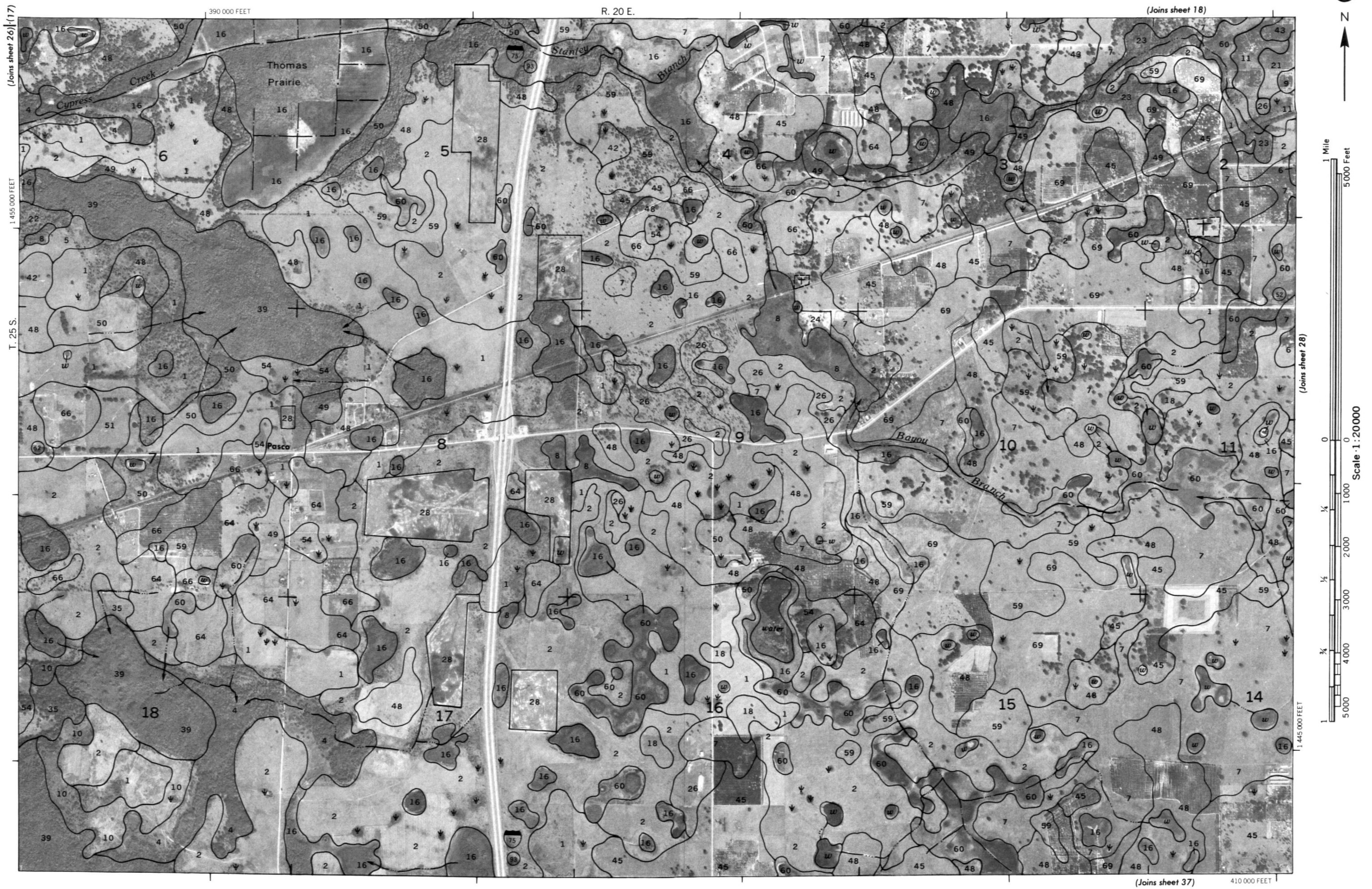
PASCO COUNTY, FLORIDA — SHEET NUMBER 27

(27)



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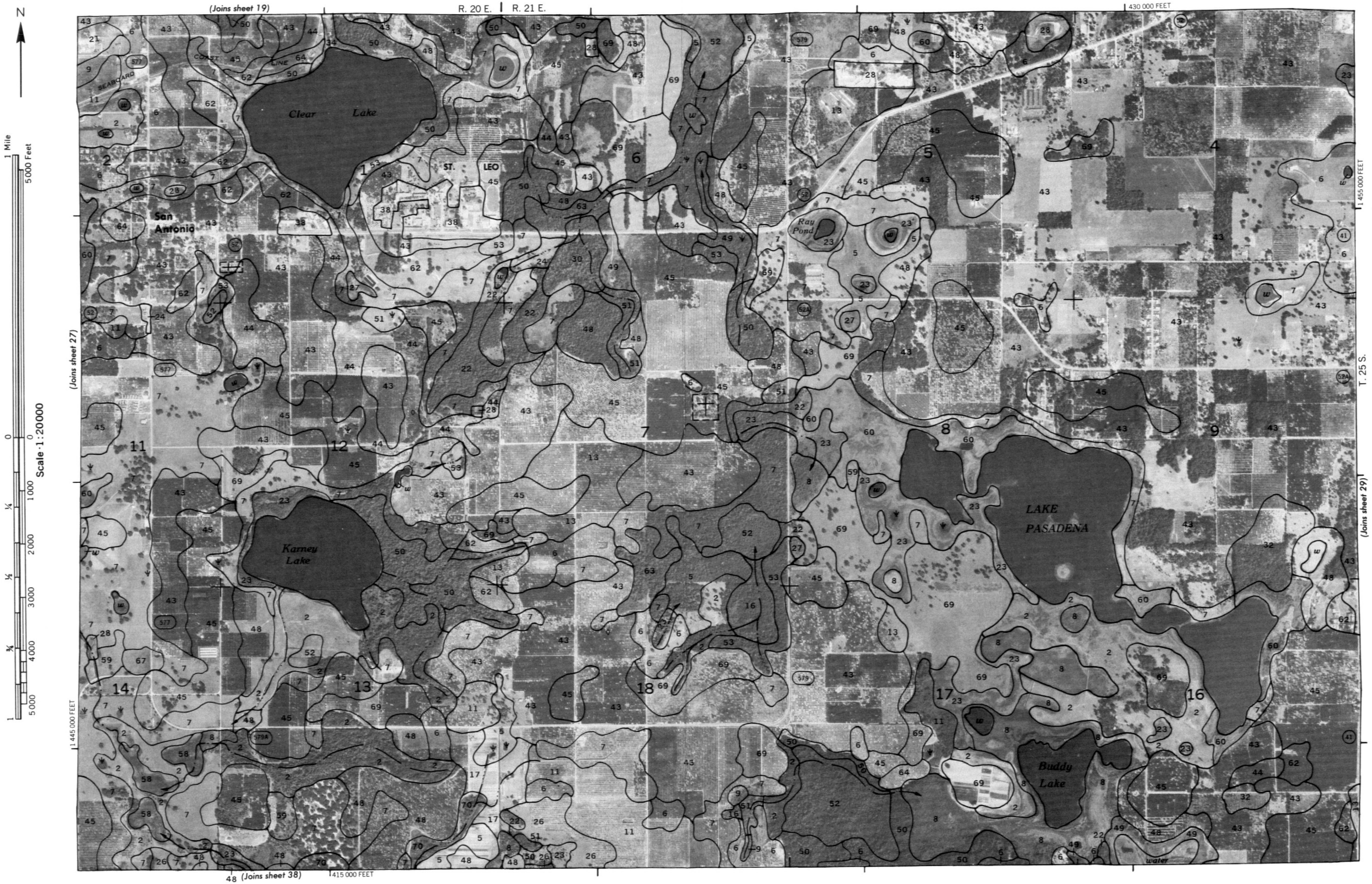
PASCO COUNTY, FLORIDA — SHEET NUMBER 28



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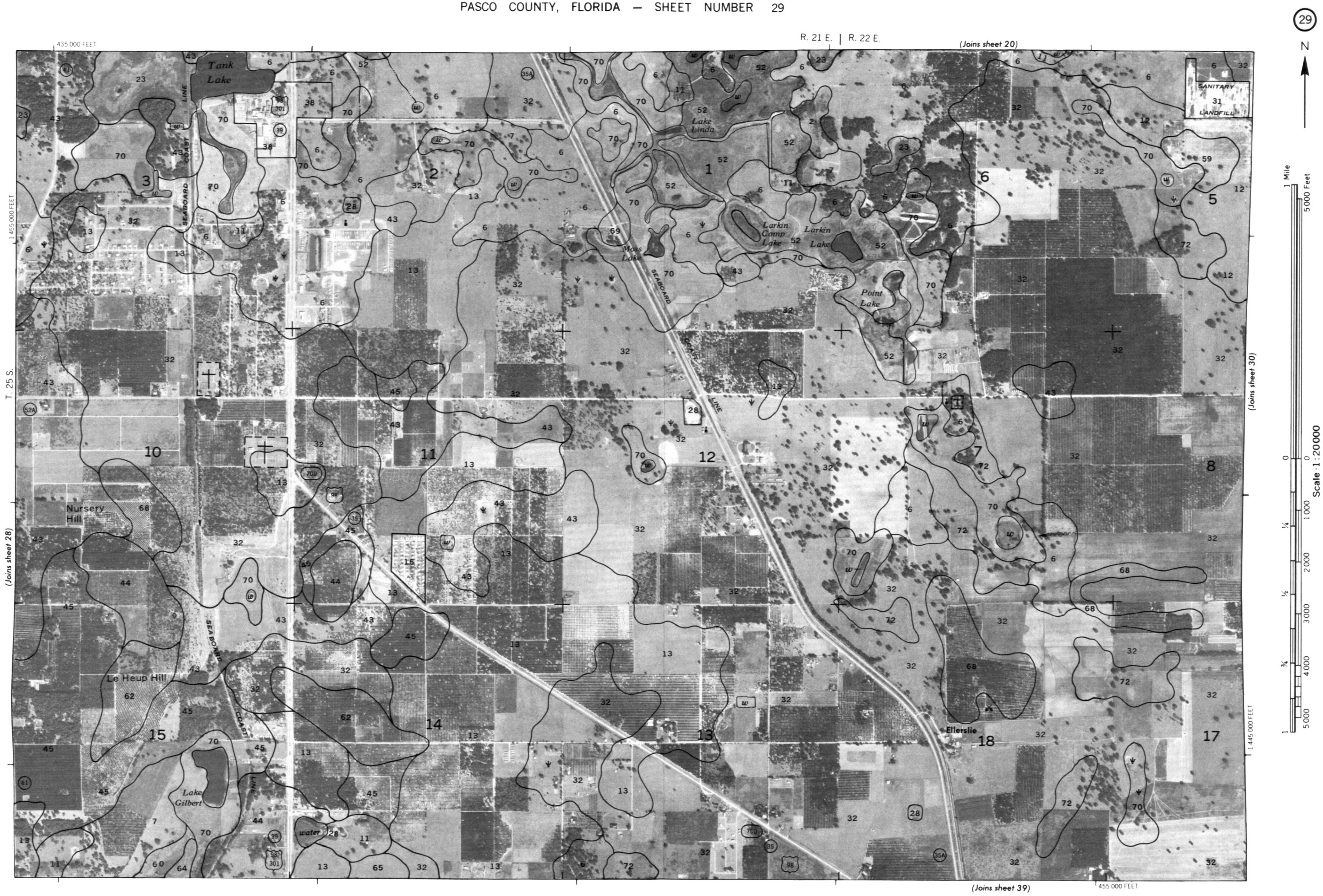
PASCO COUNTY, FLORIDA — SHEET NUMBER 29



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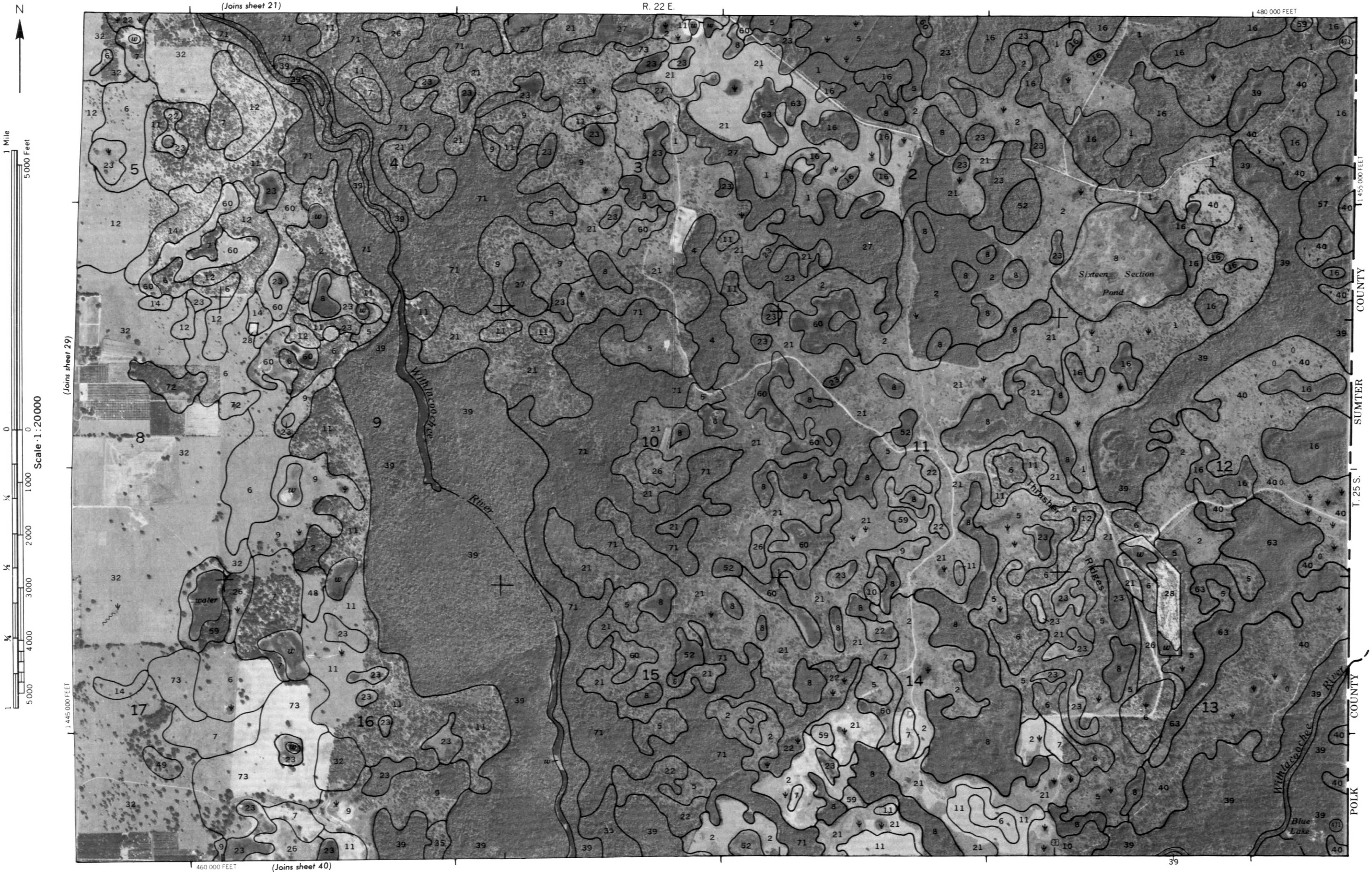
PASCO COUNTY, FLORIDA — SHEET NUMBER 30



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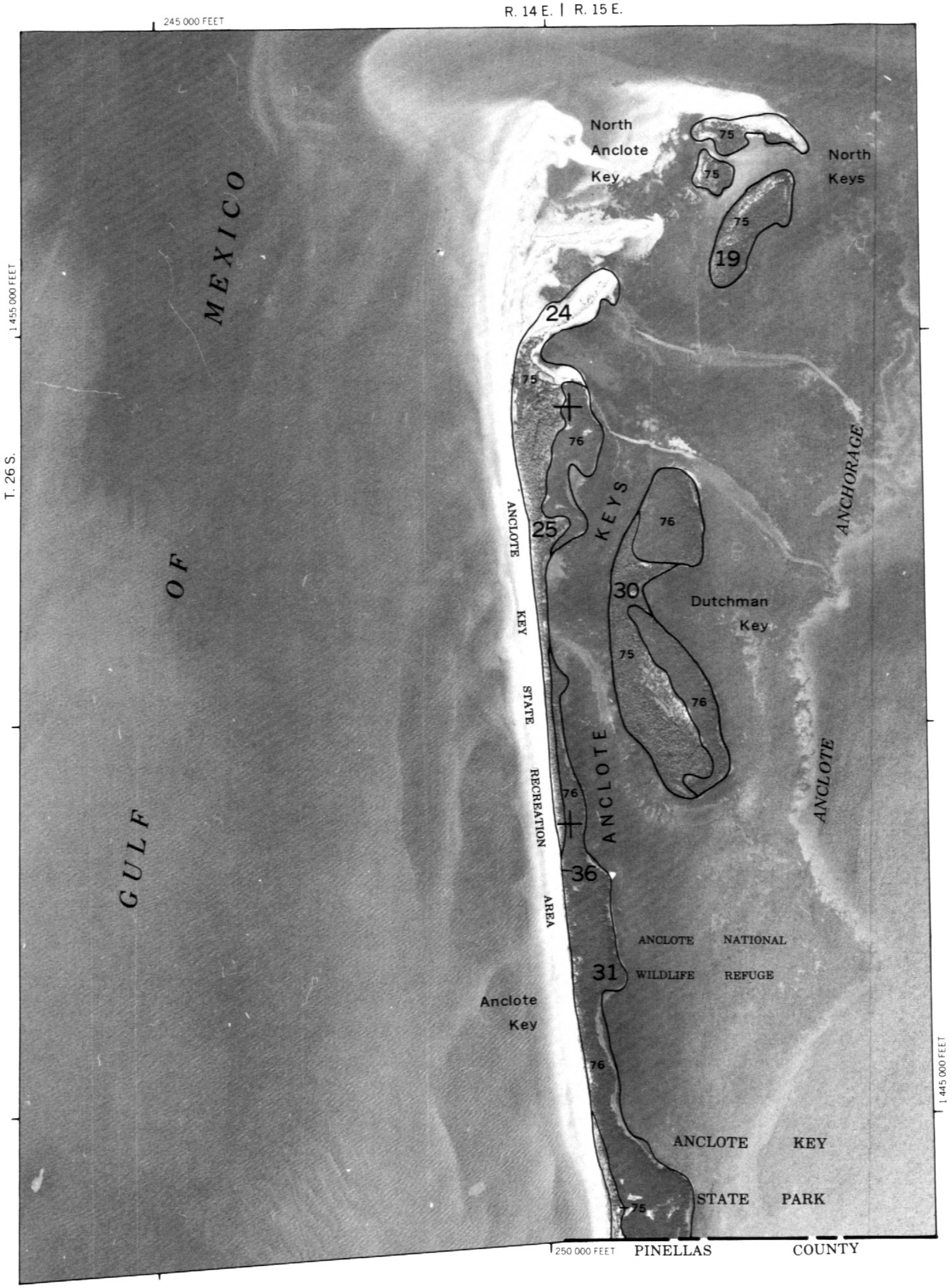

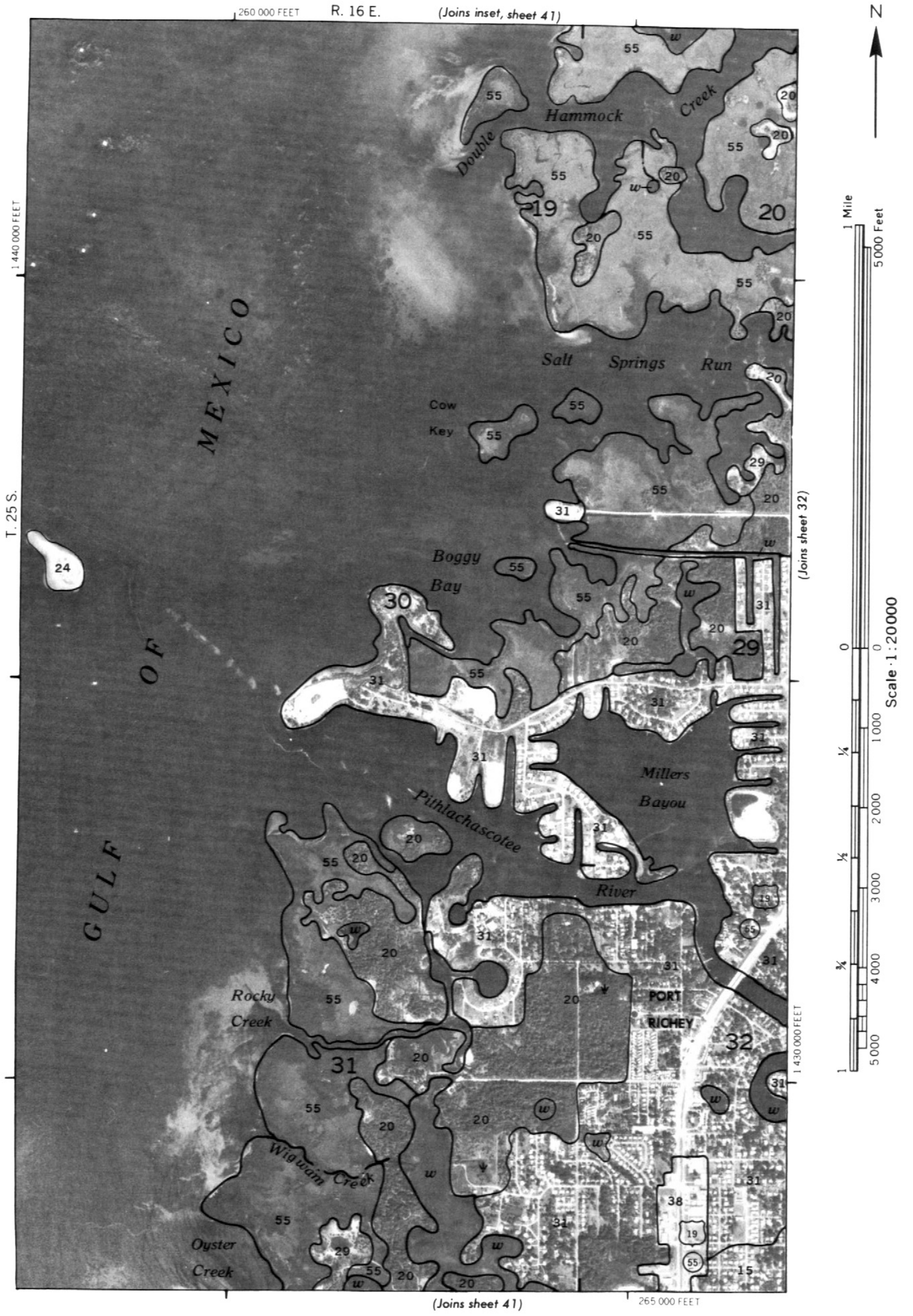

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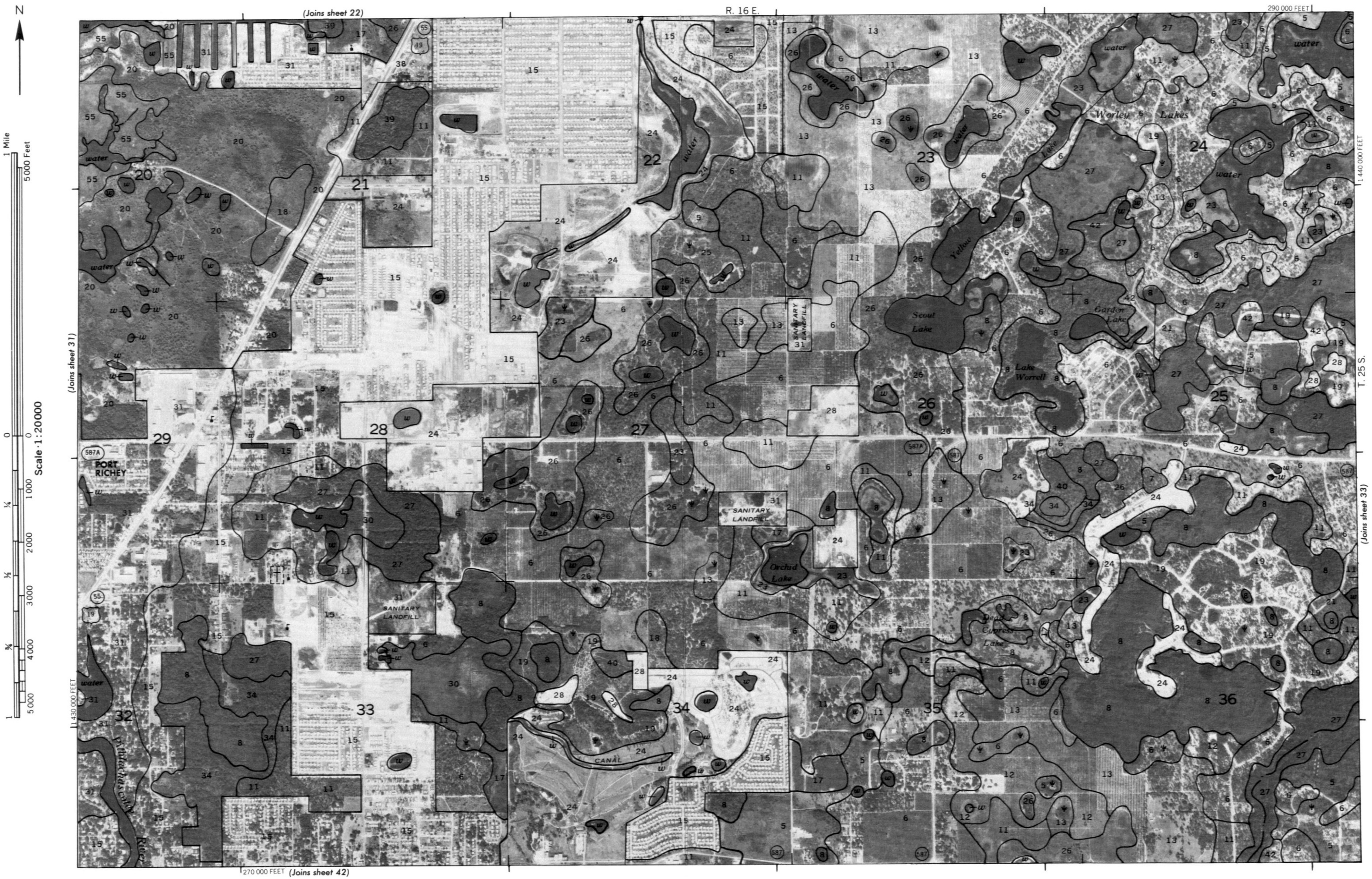
(32)

PASCO COUNTY, FLORIDA — SHEET NUMBER 32



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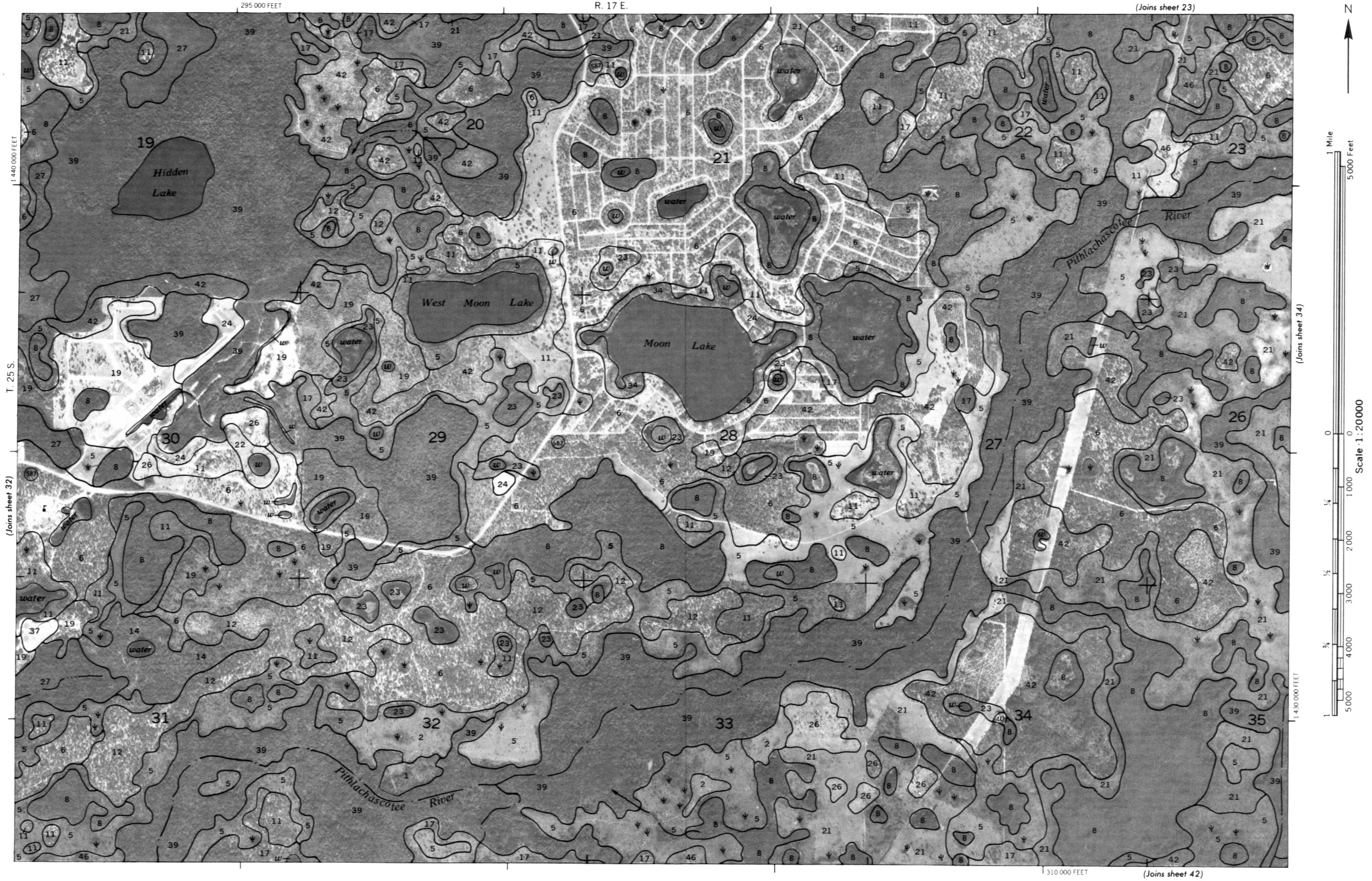
PASCO COUNTY, FLORIDA — SHEET NUMBER 33



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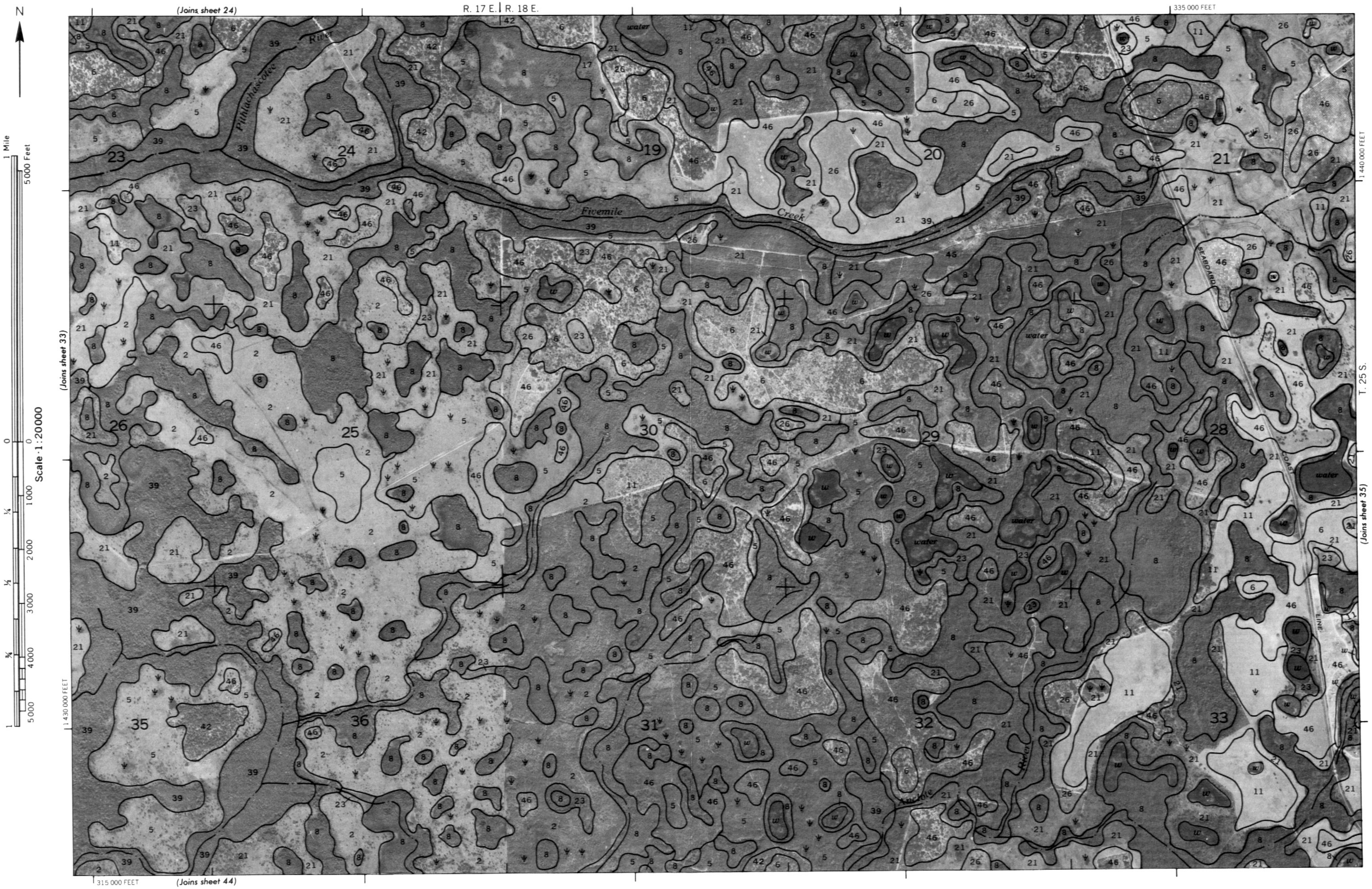
34

PASCO COUNTY, FLORIDA — SHEET NUMBER 34



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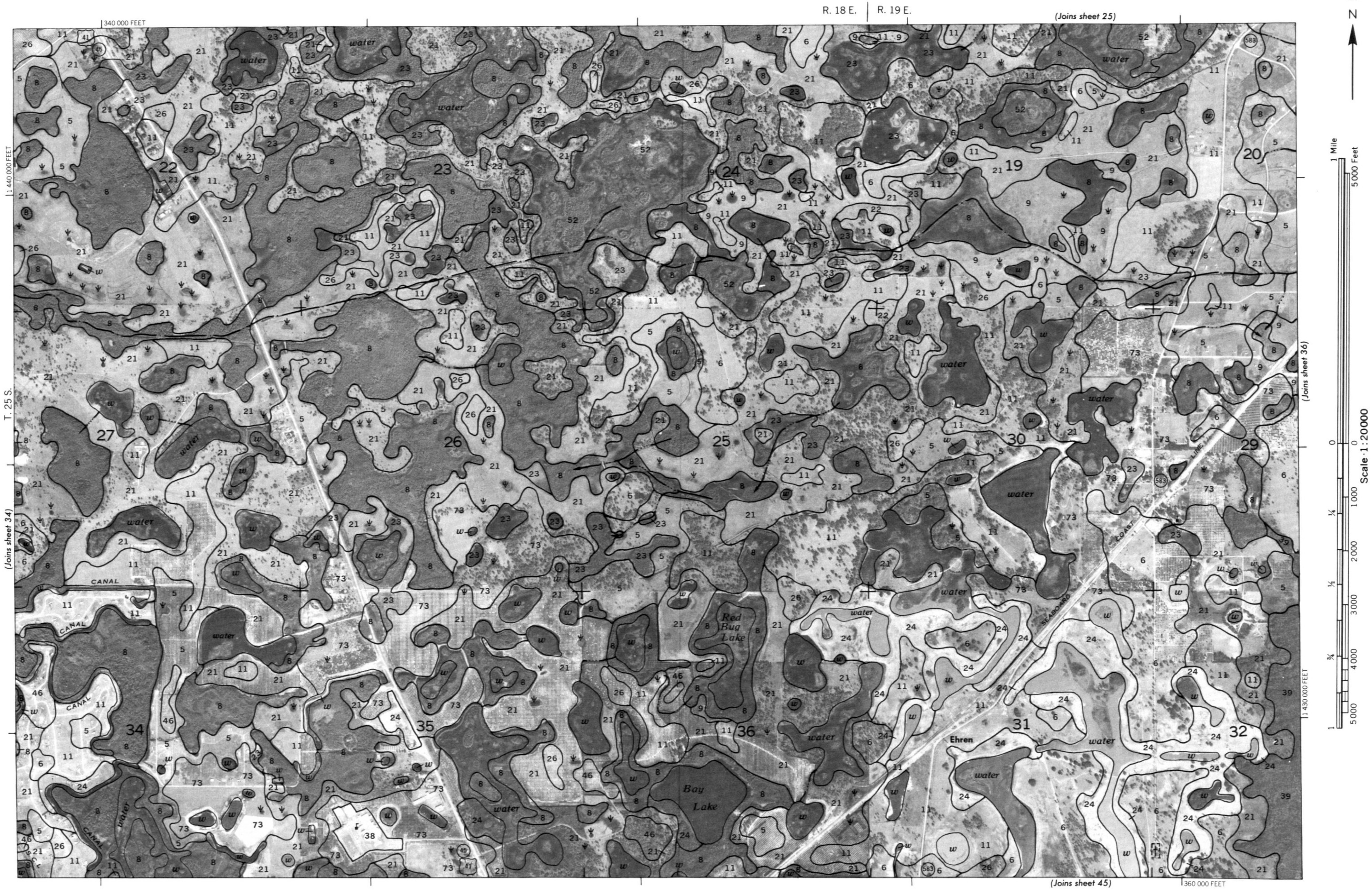
PASCO COUNTY, FLORIDA — SHEET NUMBER 35



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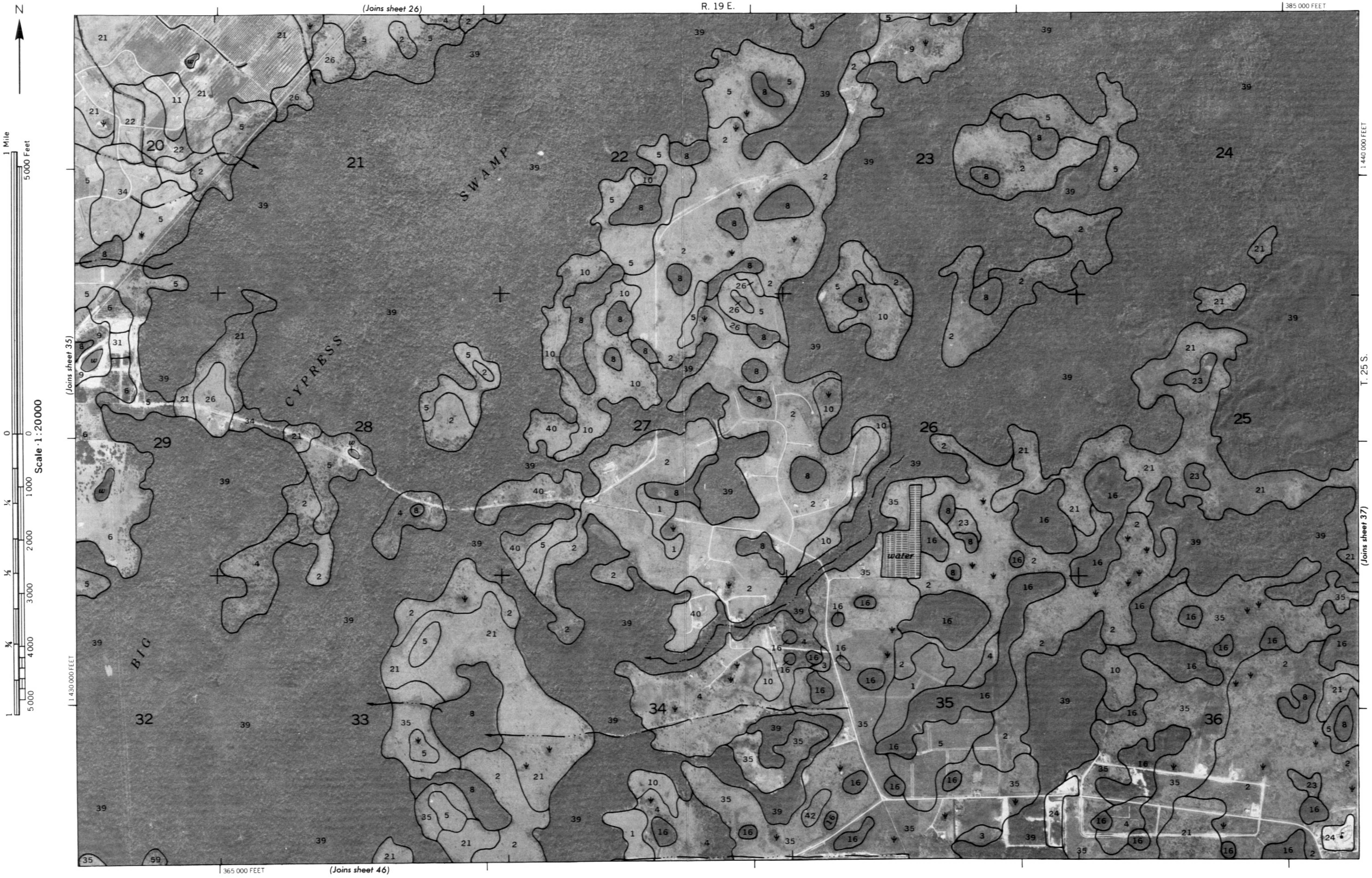
PASCO COUNTY, FLORIDA — SHEET NUMBER 36



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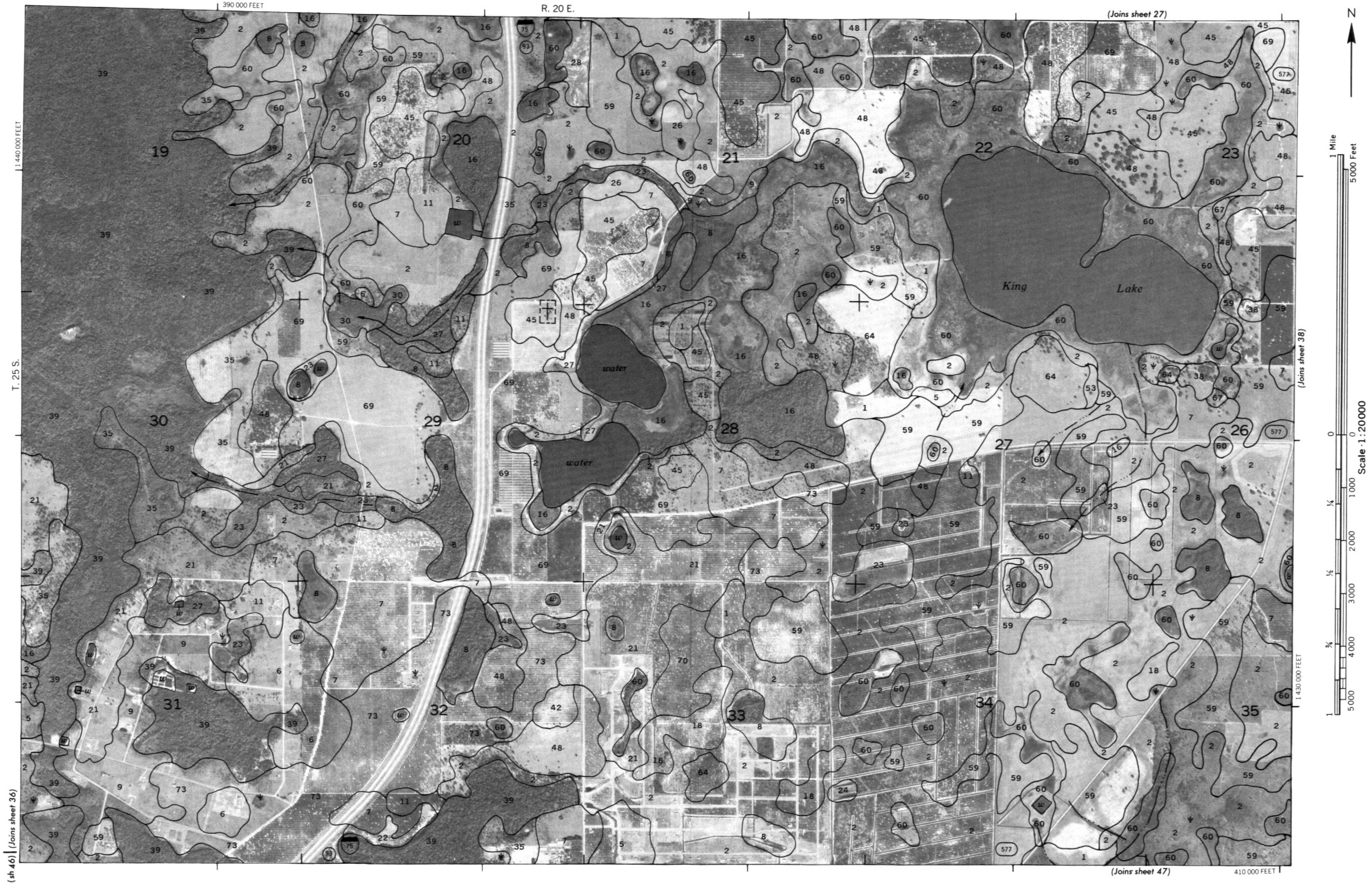
PASCO COUNTY, FLORIDA — SHEET NUMBER 37



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PASCO COUNTY, FLORIDA — SHEET NUMBER 38

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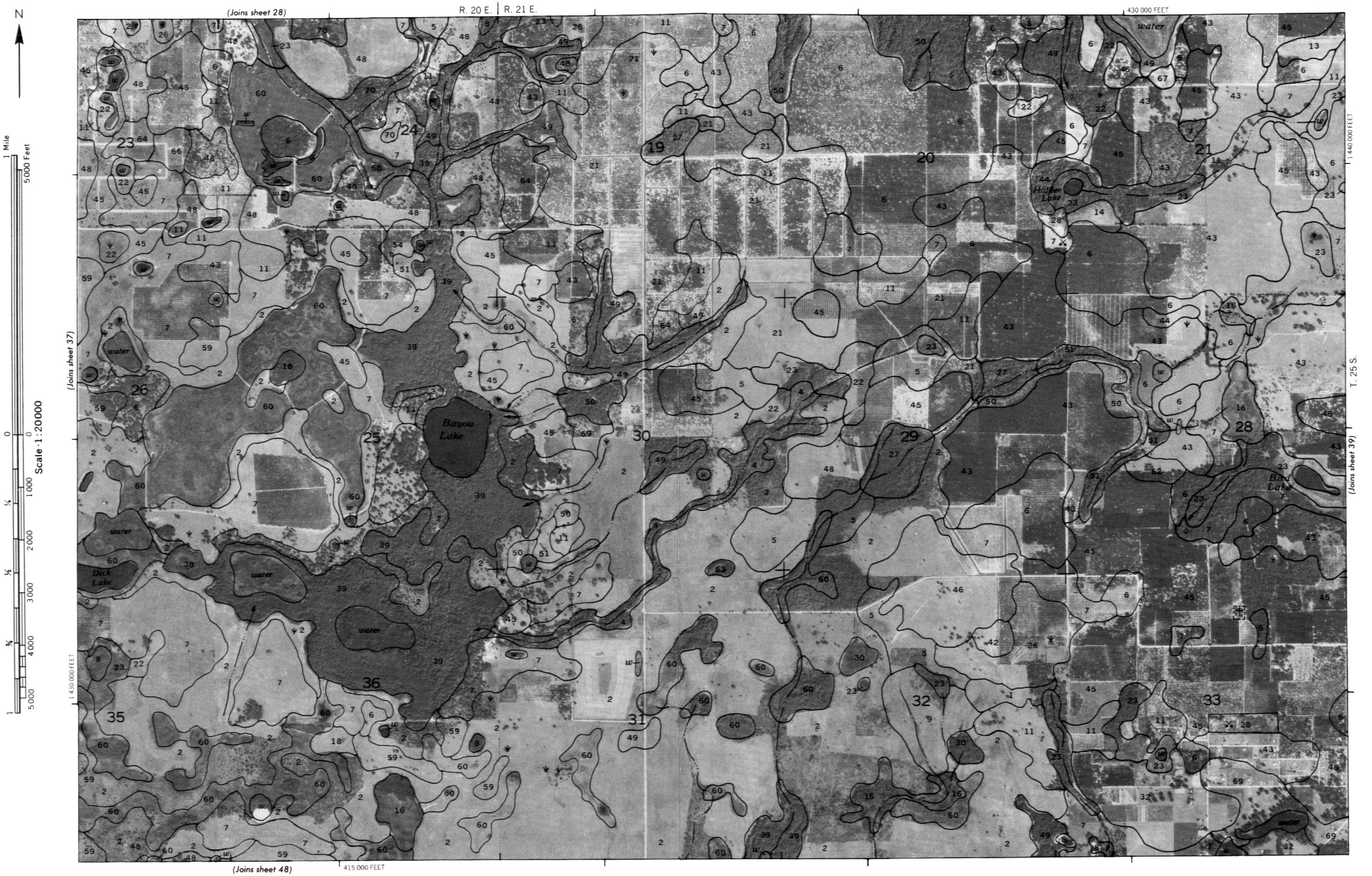

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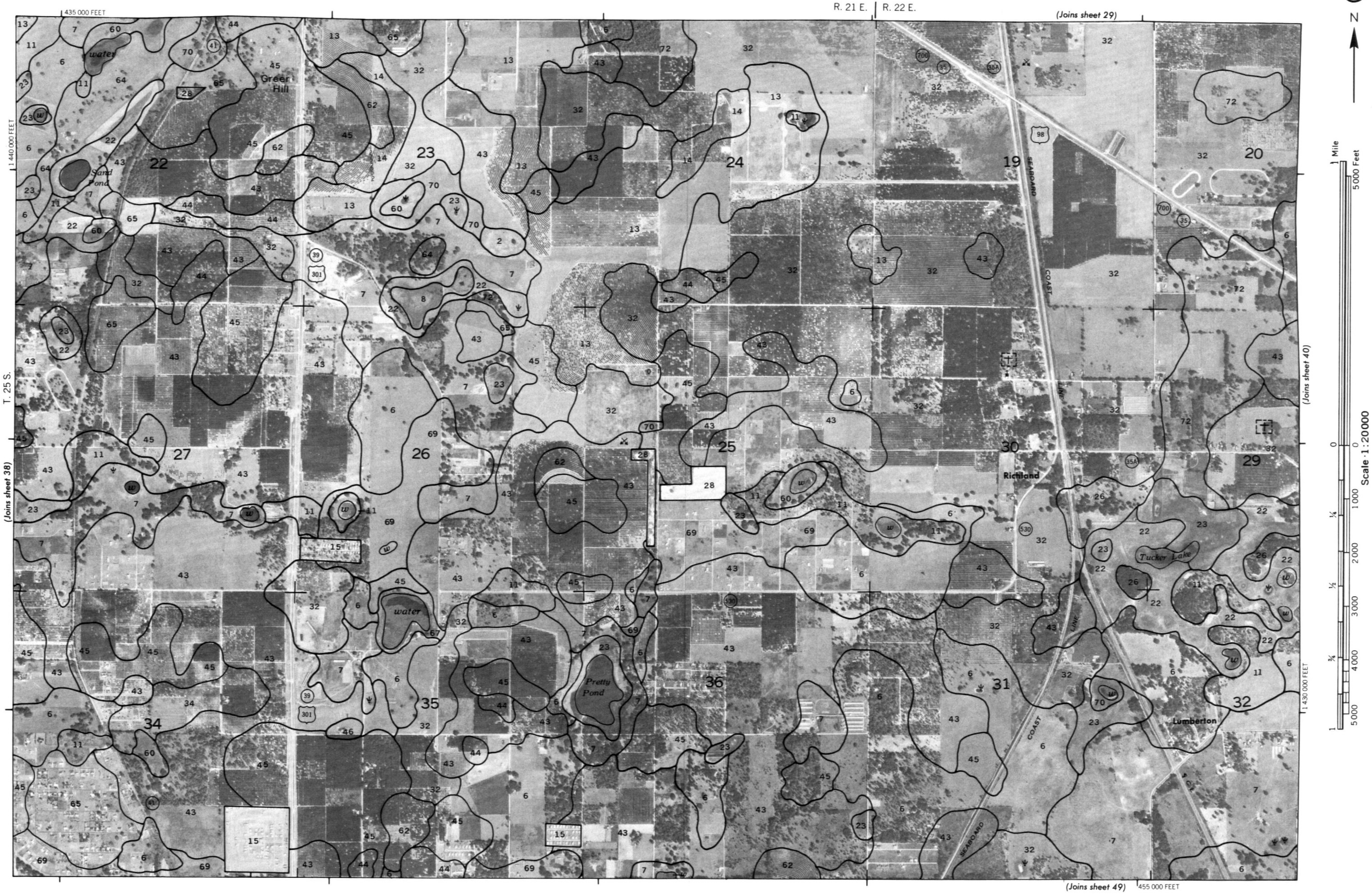
PASCO COUNTY, FLORIDA — SHEET NUMBER 39



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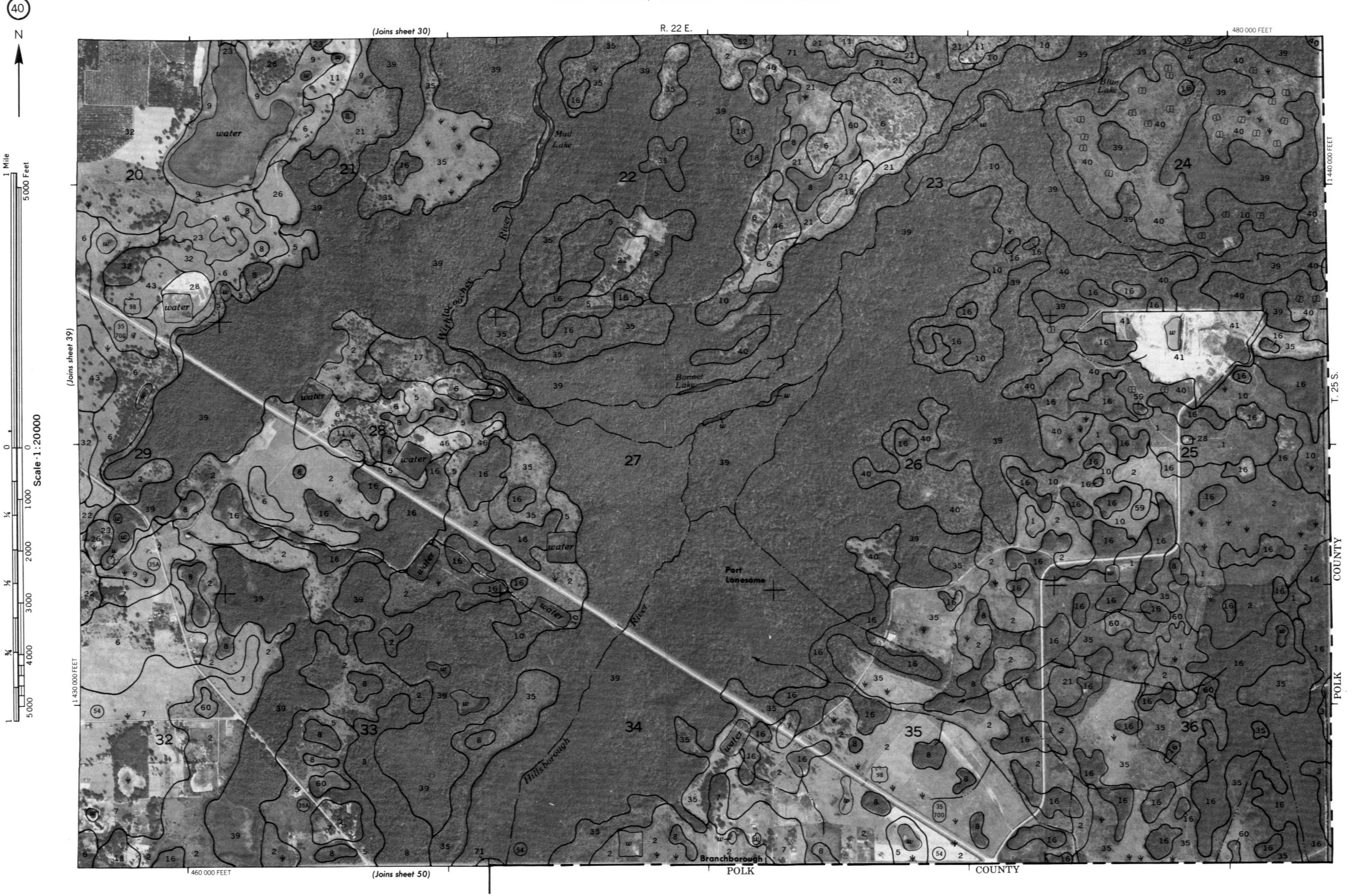
PASCO COUNTY, FLORIDA — SHEET NUMBER 40



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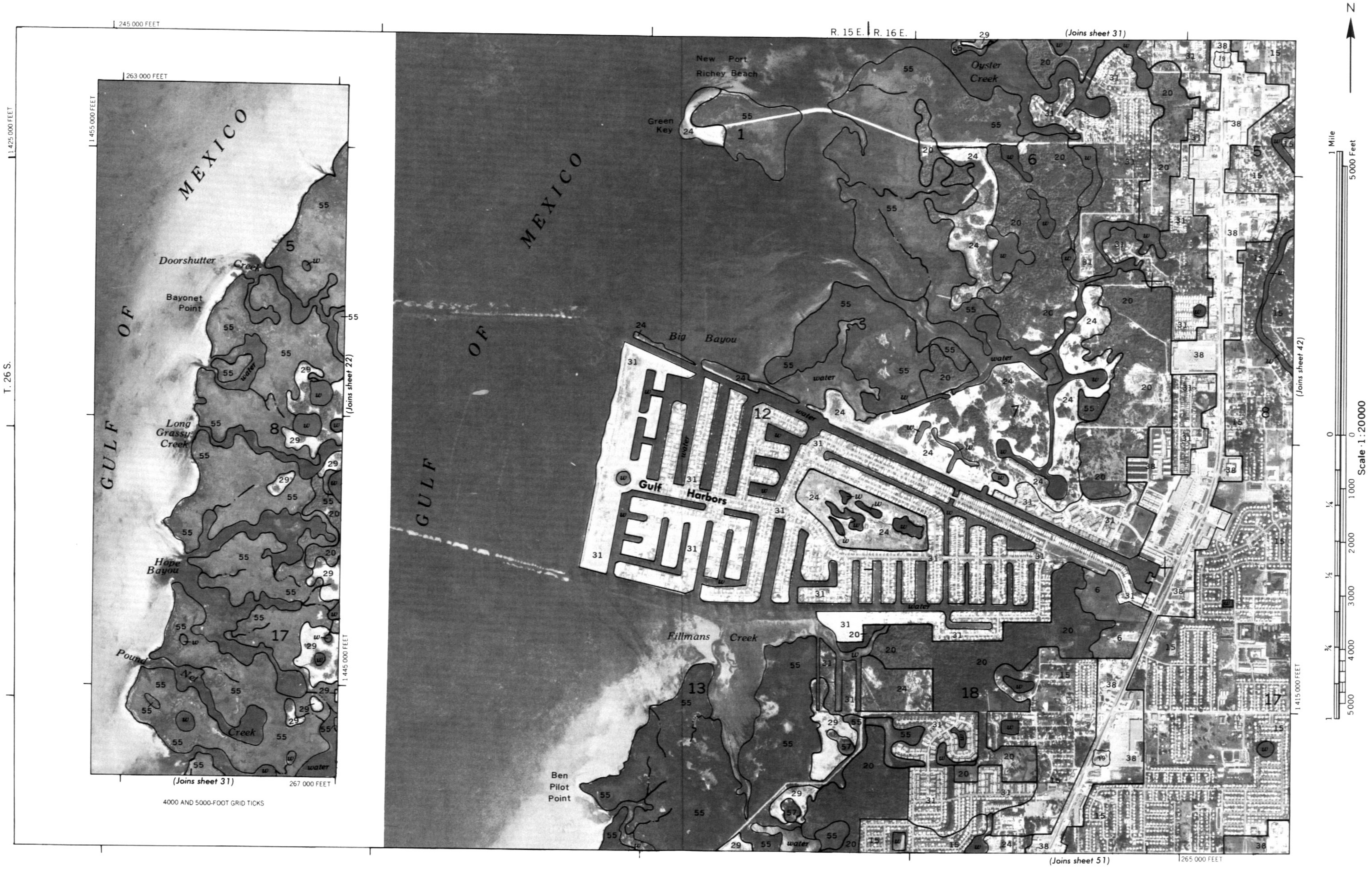
PASCO COUNTY, FLORIDA — SHEET NUMBER 41



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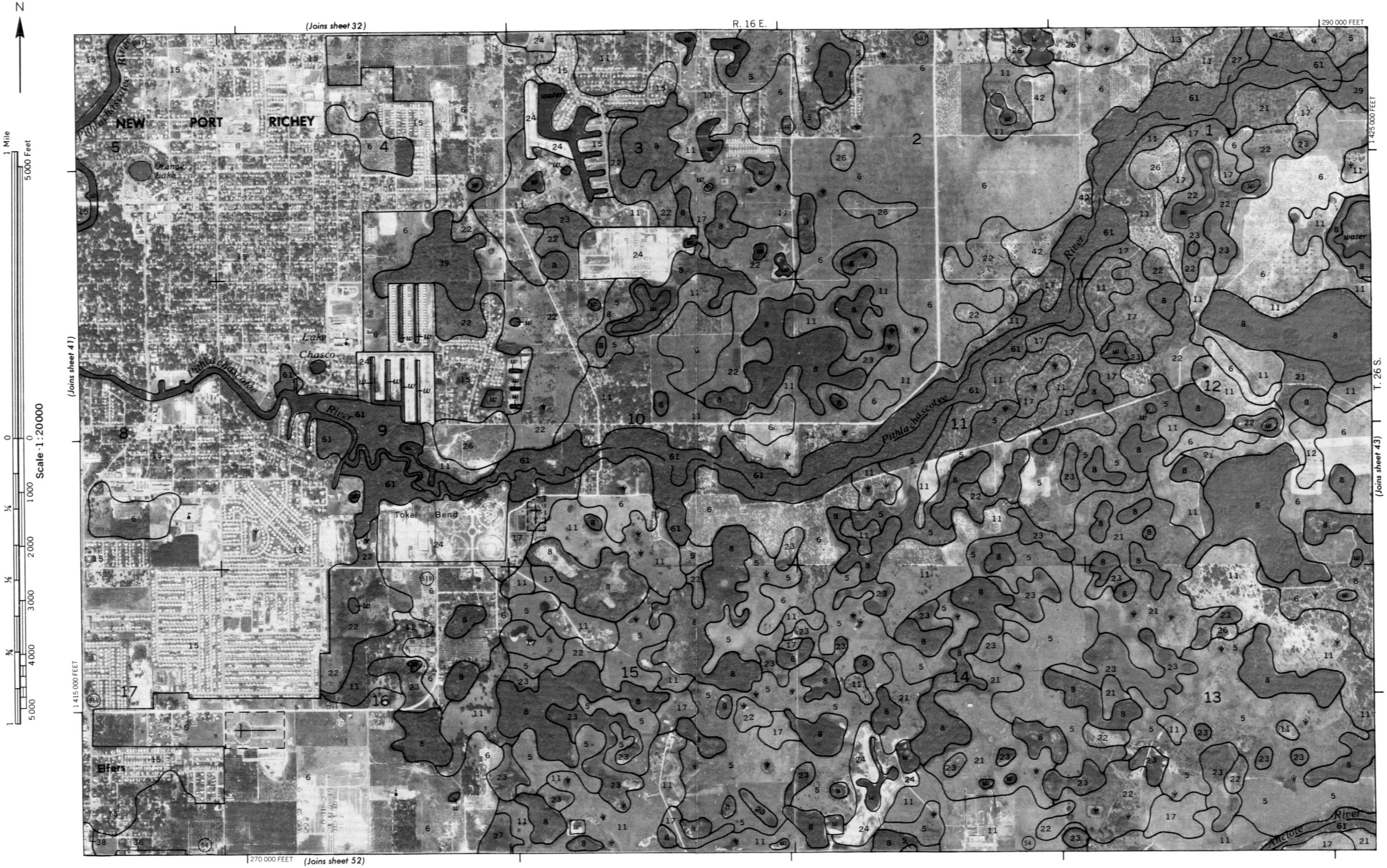
PASCO COUNTY, FLORIDA — SHEET NUMBER 42



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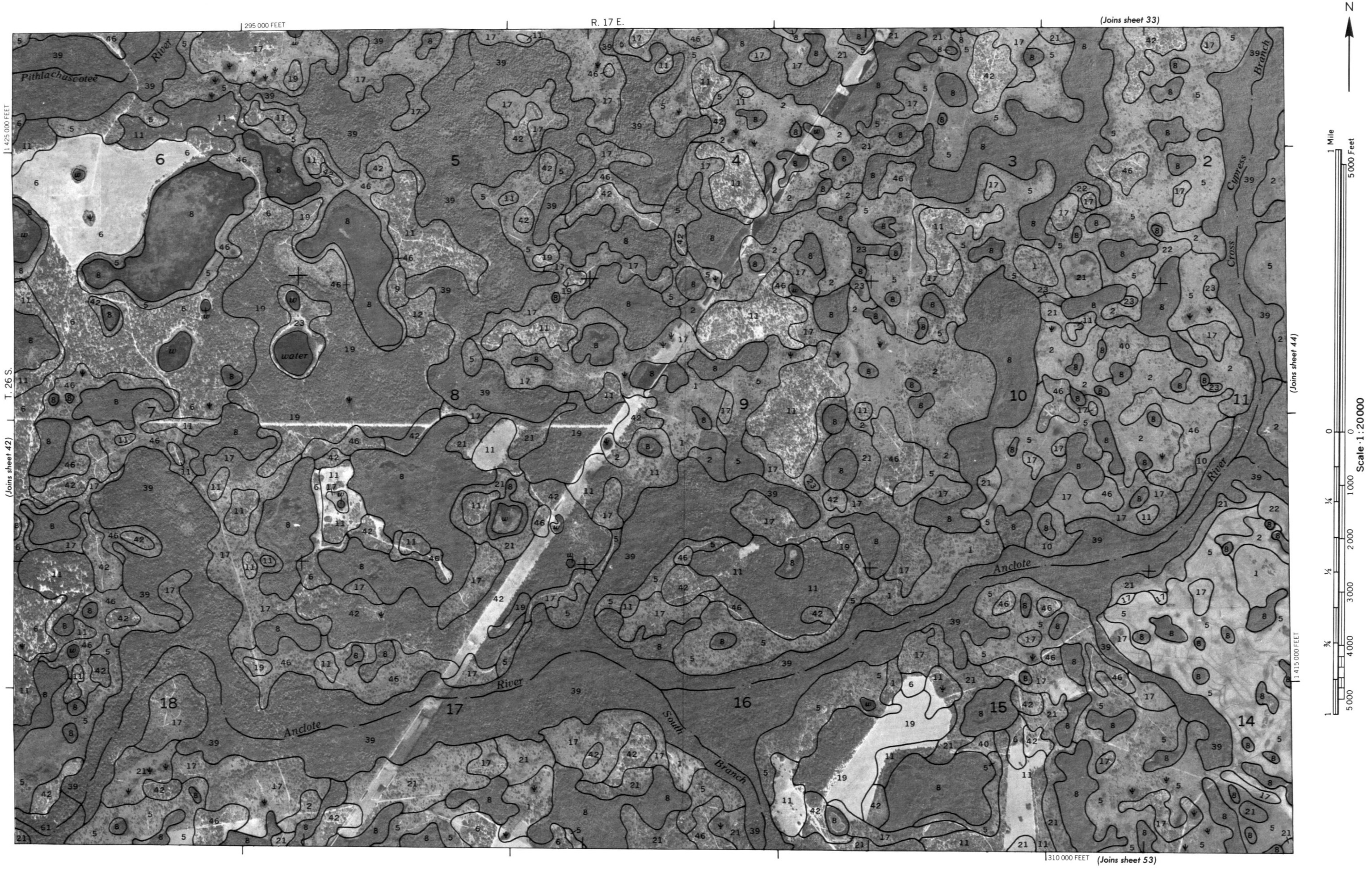

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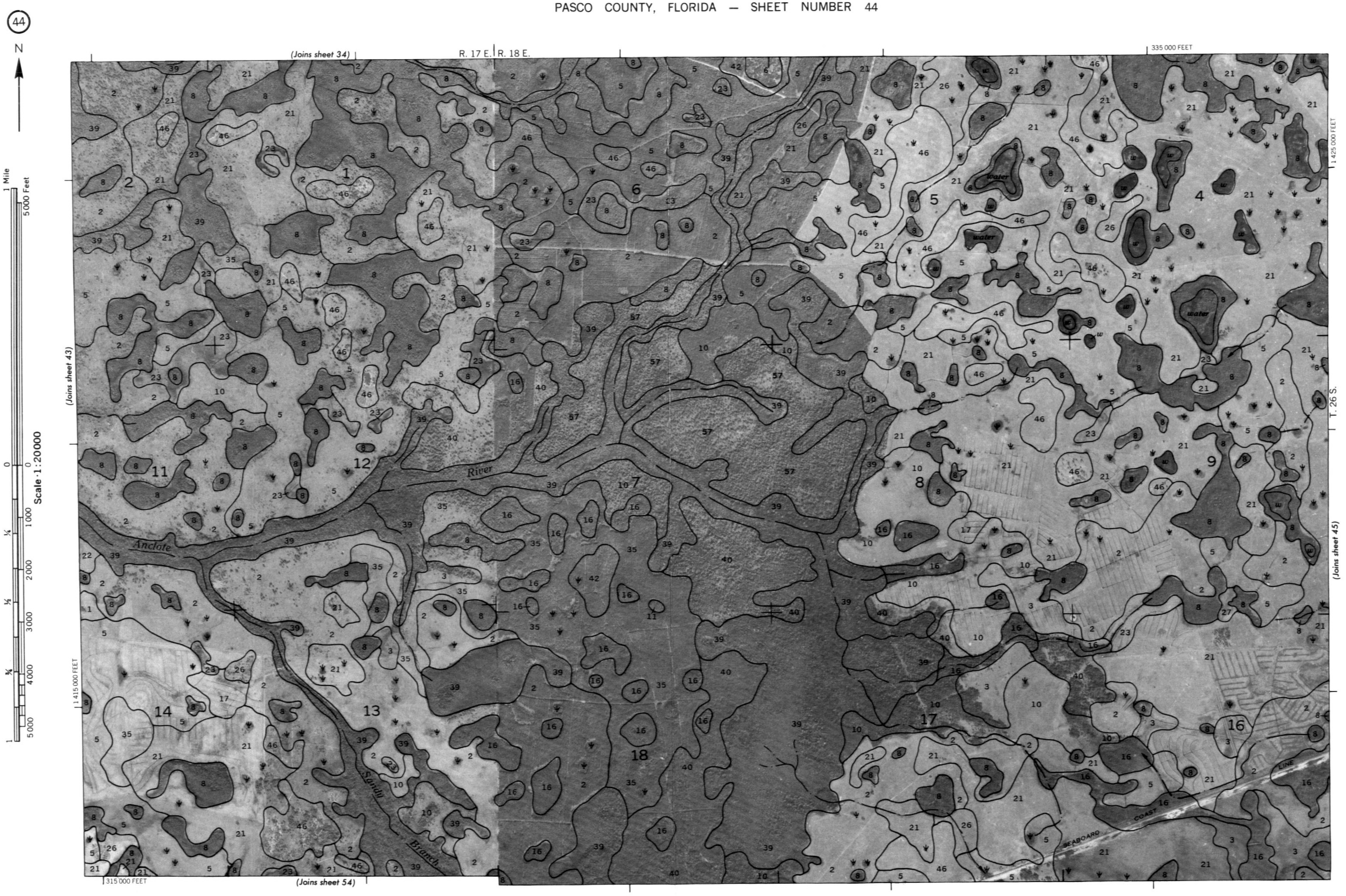
PASCO COUNTY, FLORIDA — SHEET NUMBER 44



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PASCO COUNTY, FLORIDA — SHEET NUMBER 45

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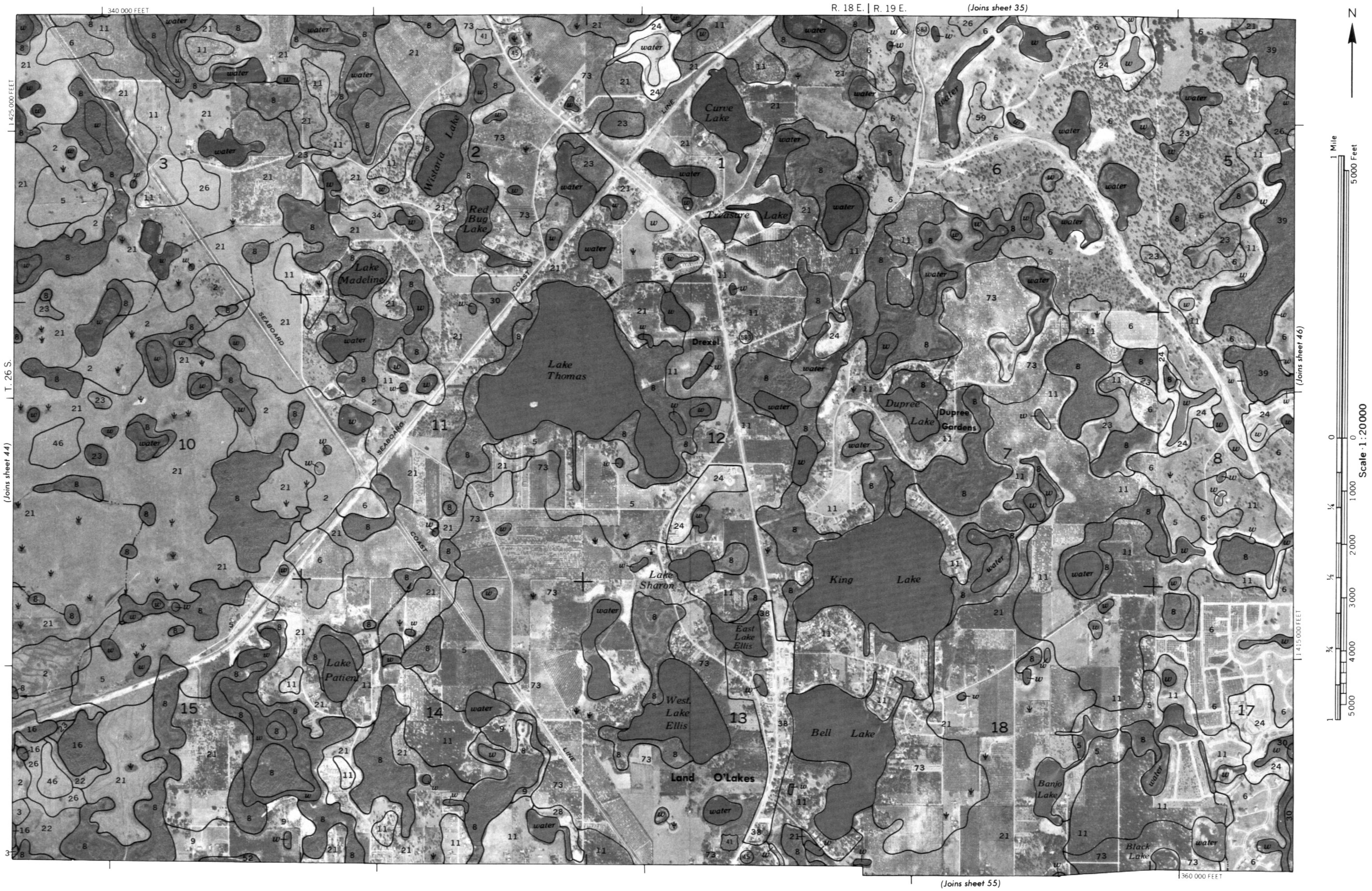
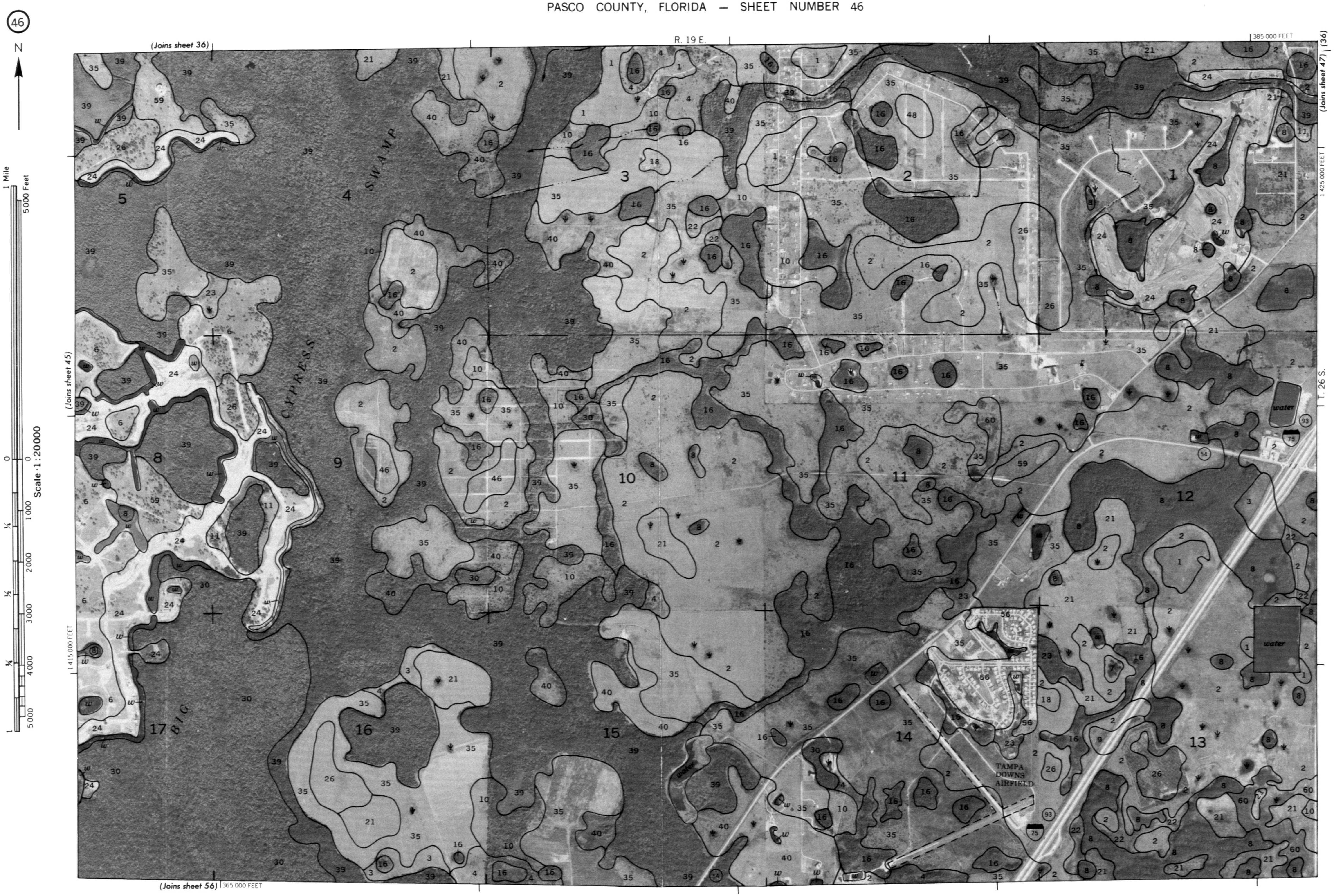
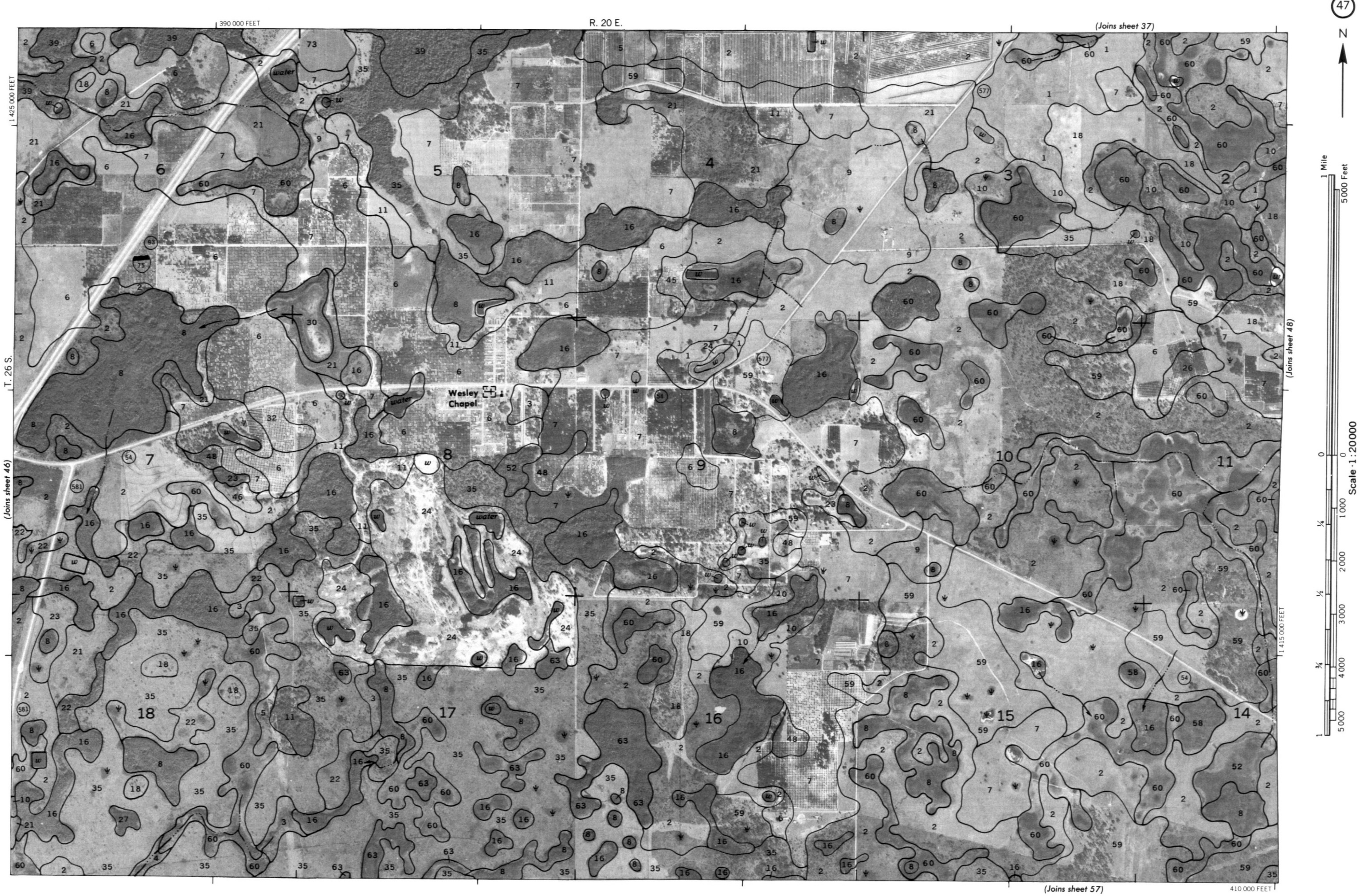


PASCO COUNTY, FLORIDA — SHEET NUMBER 46



This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

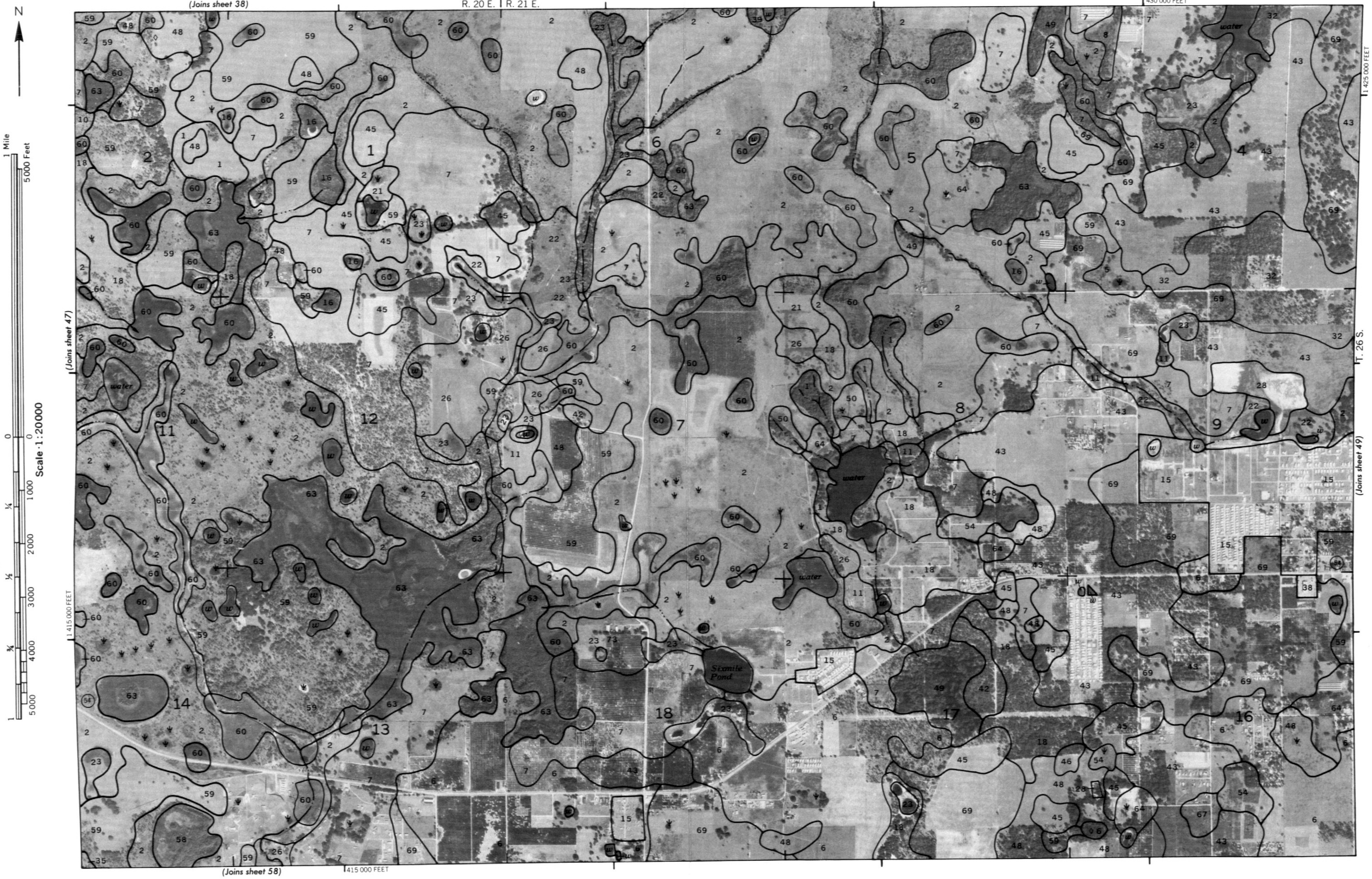
PASCO COUNTY, FLORIDA — SHEET NUMBER 47



This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

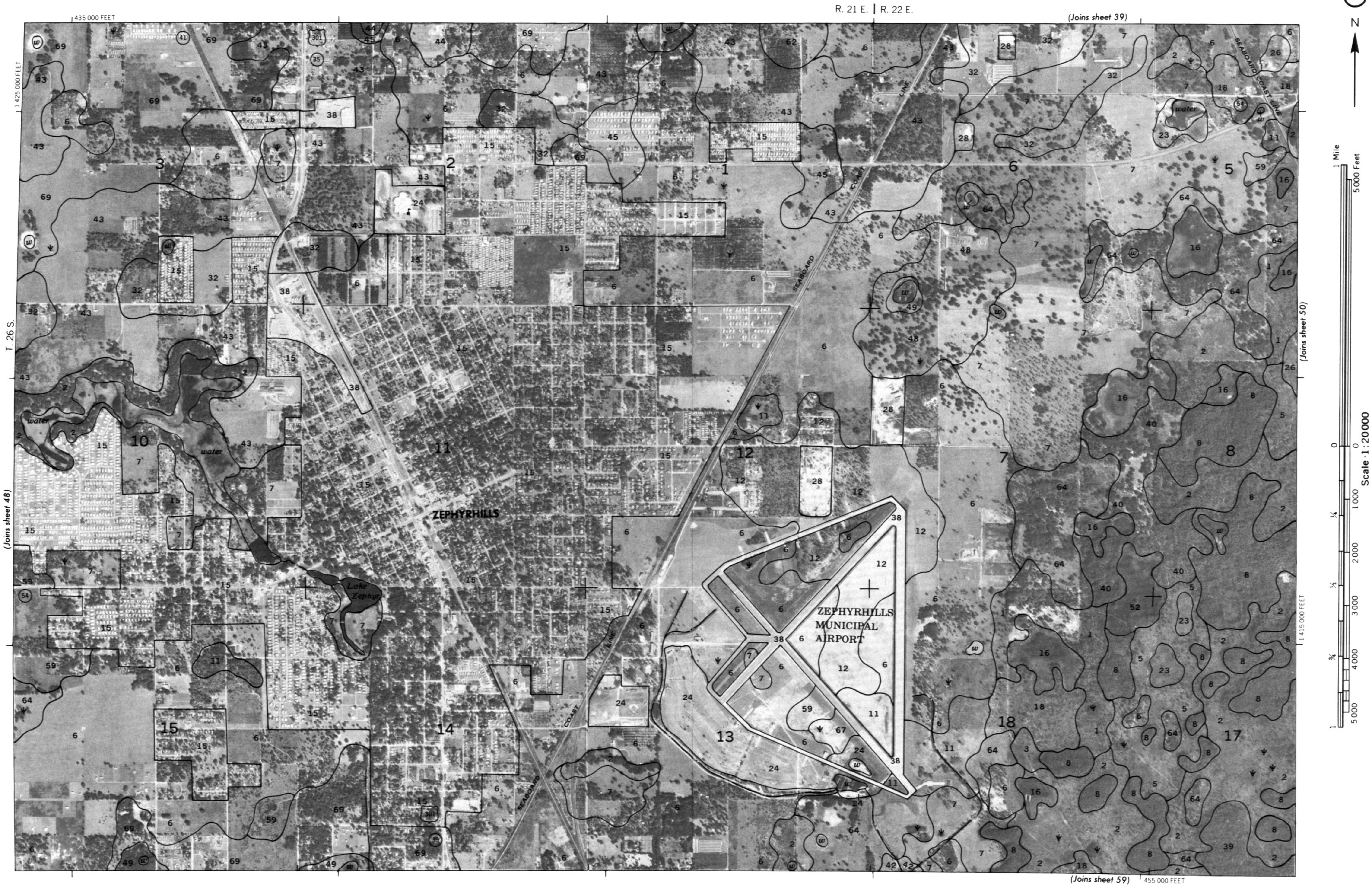
(48)

PASCO COUNTY, FLORIDA — SHEET NUMBER 48

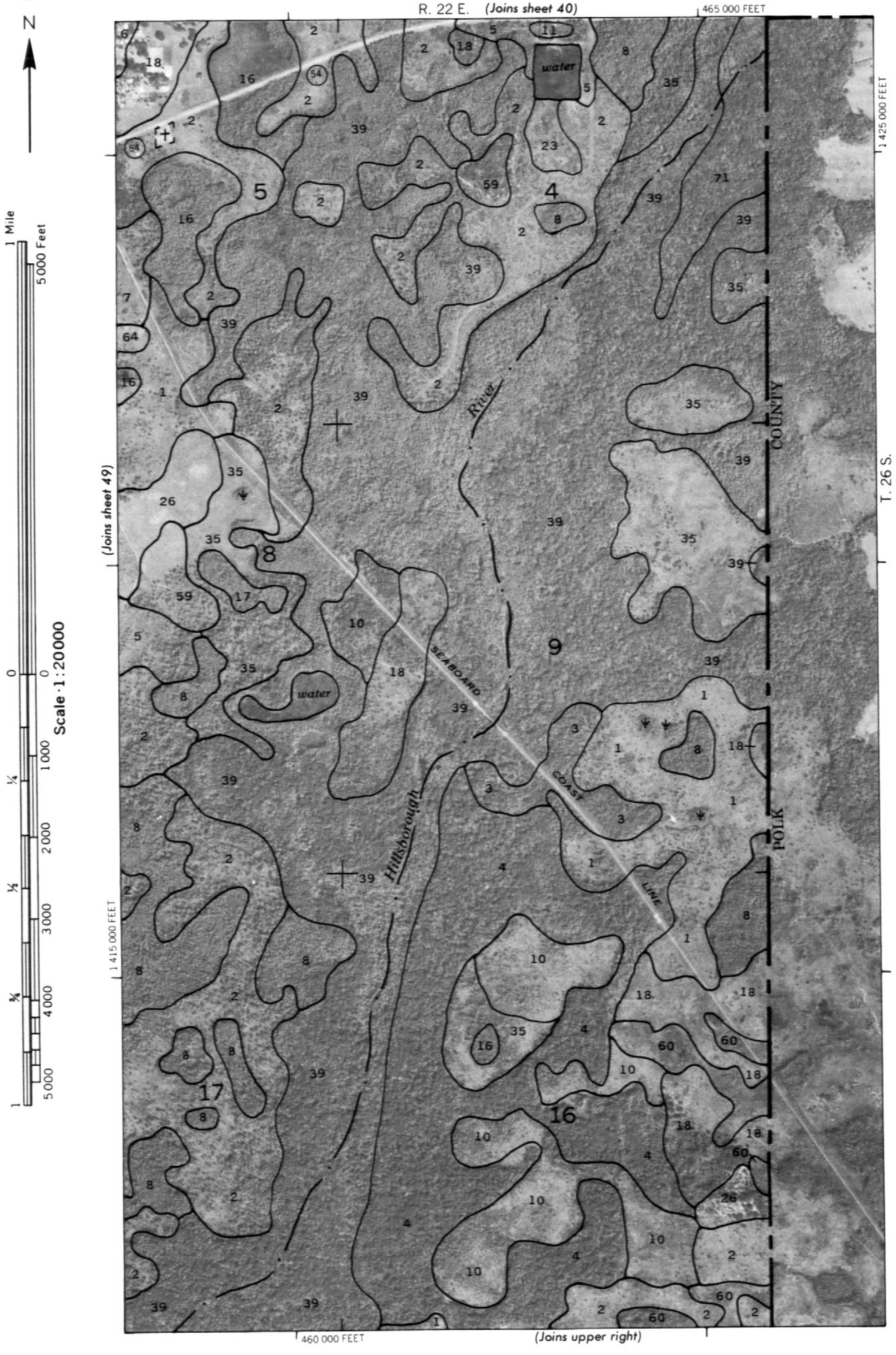


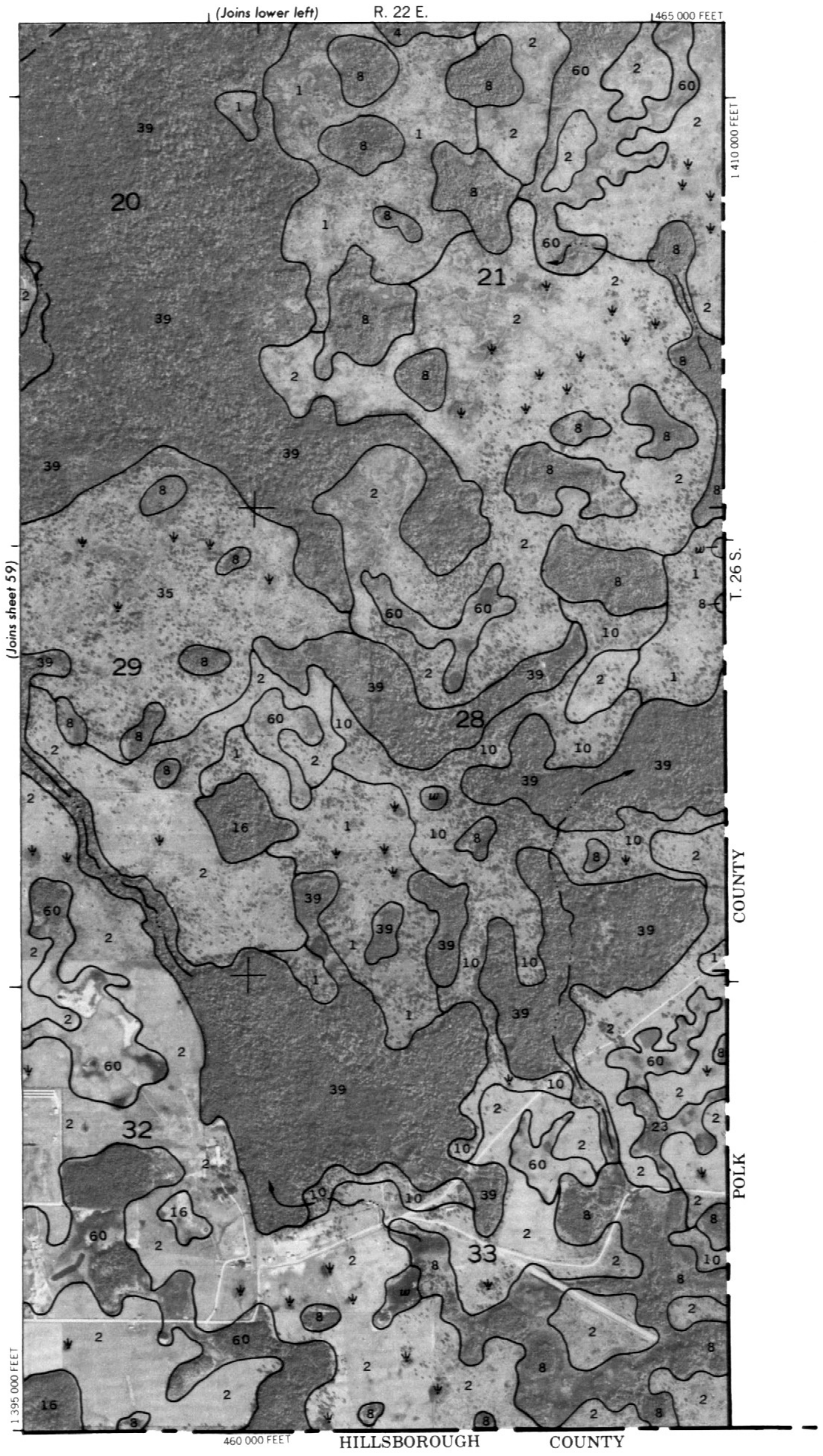
This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

PASCO COUNTY, FLORIDA — SHEET NUMBER 49



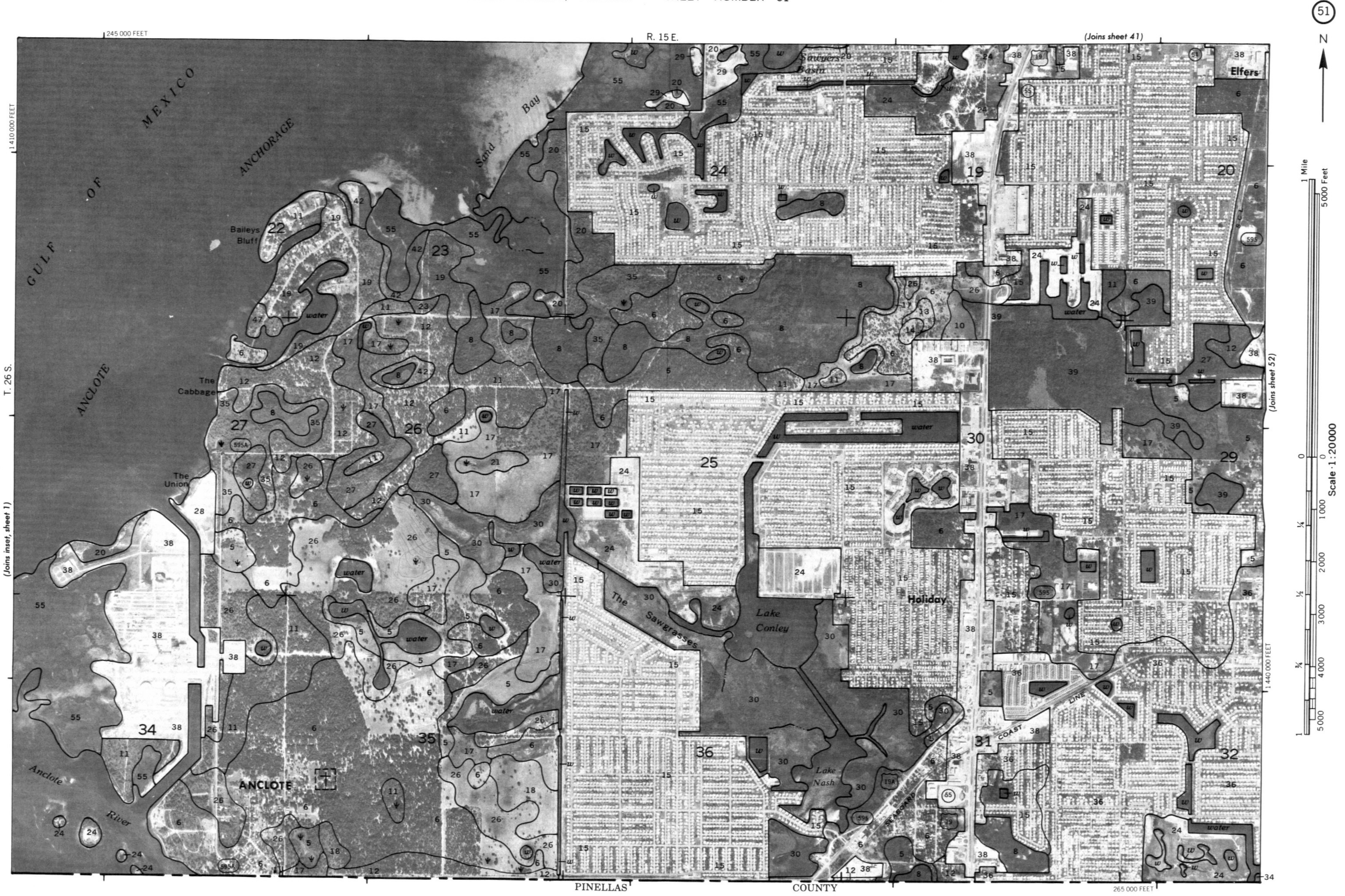
This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.





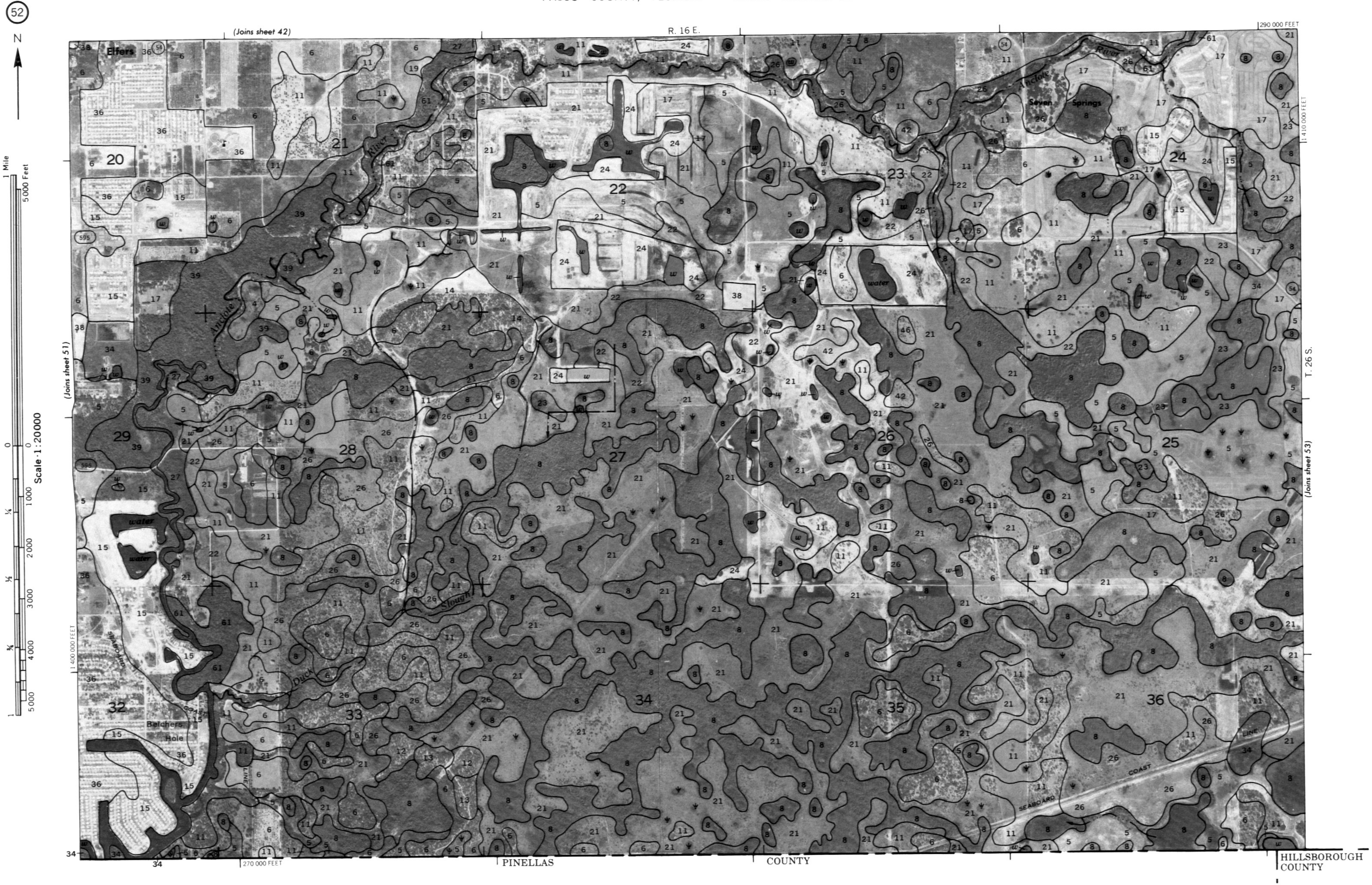
This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

PASCO COUNTY, FLORIDA — SHEET NUMBER 51

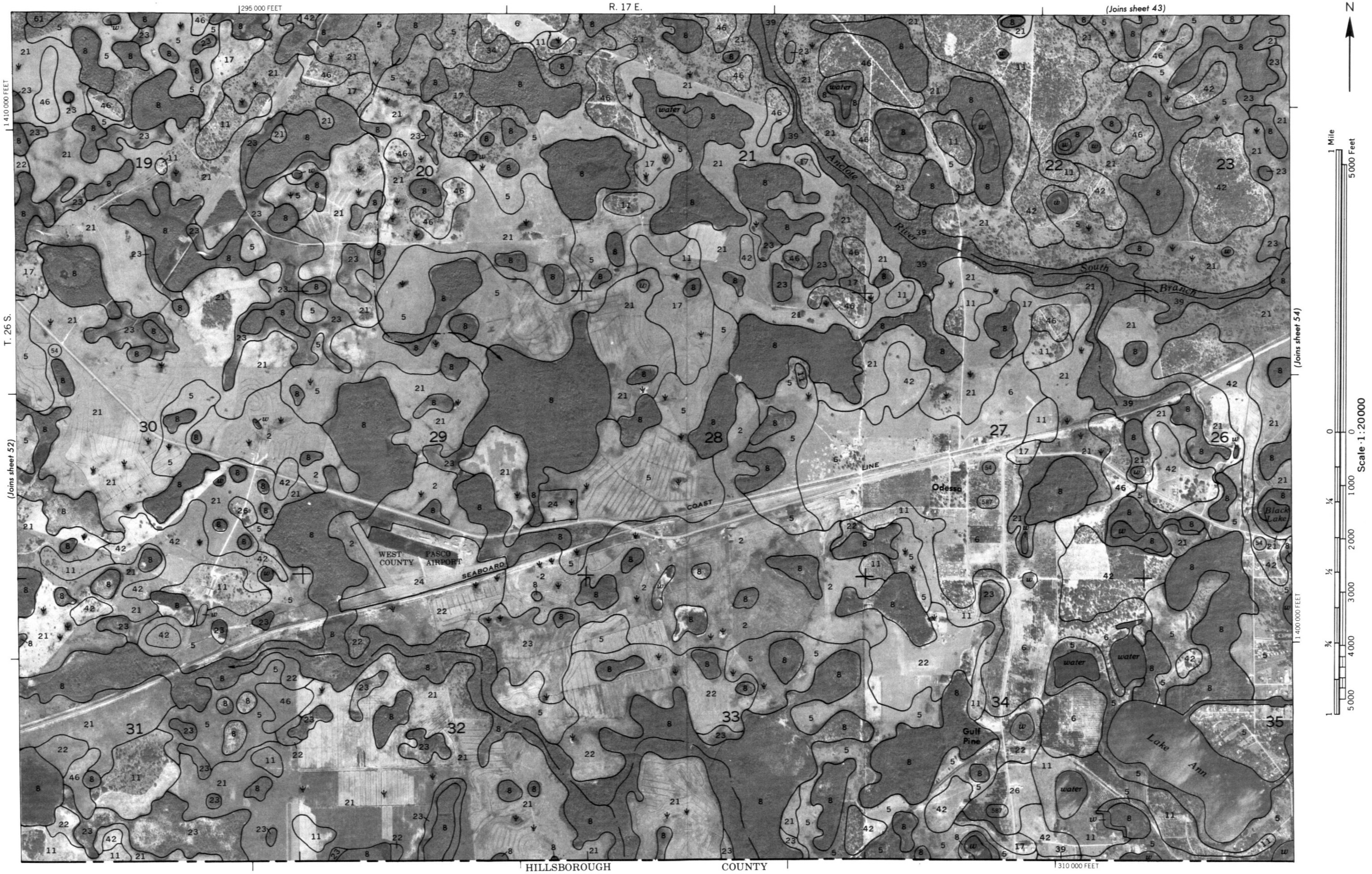


This map is compiled on on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

PASCO COUNTY, FLORIDA — SHEET NUMBER 52

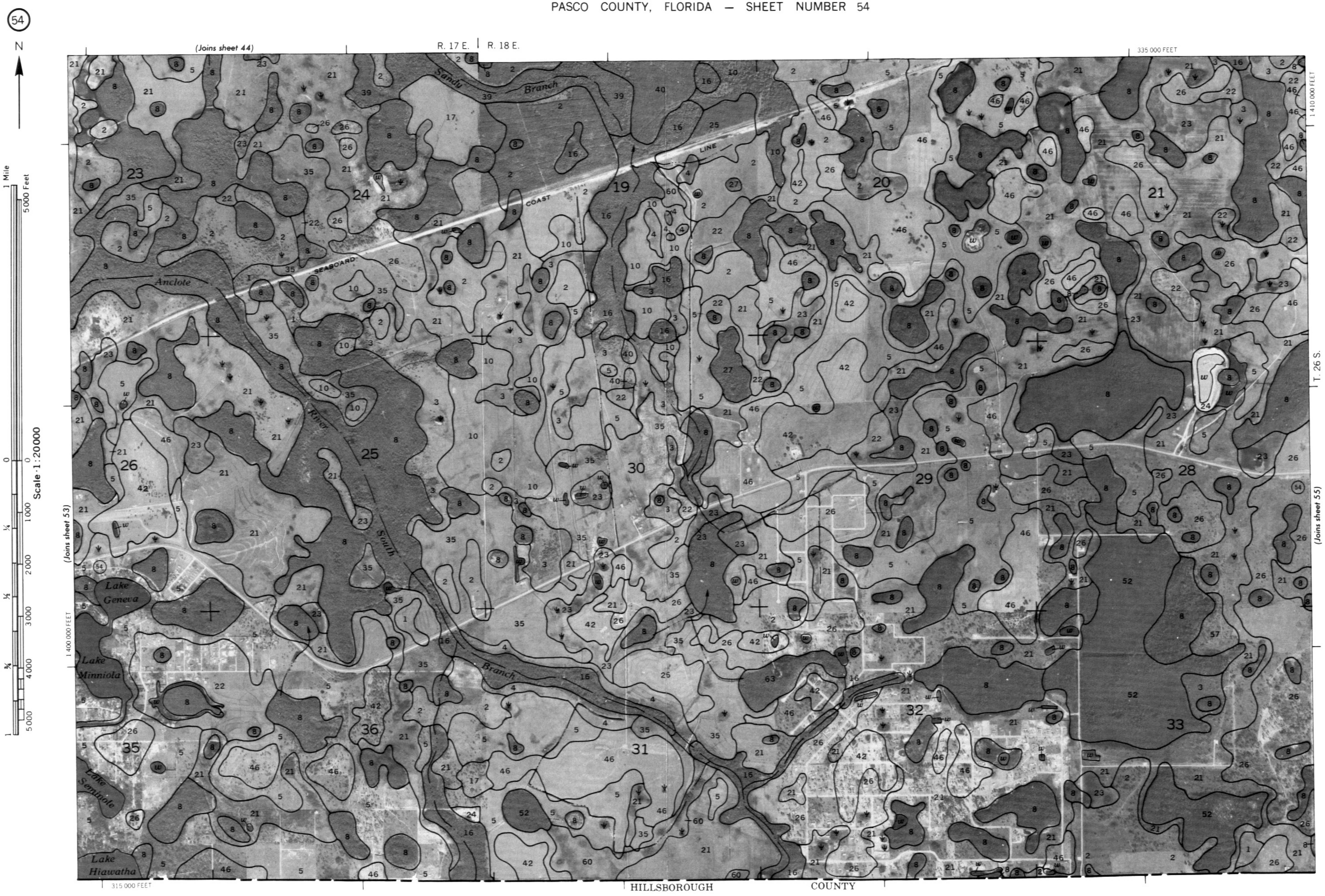


This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



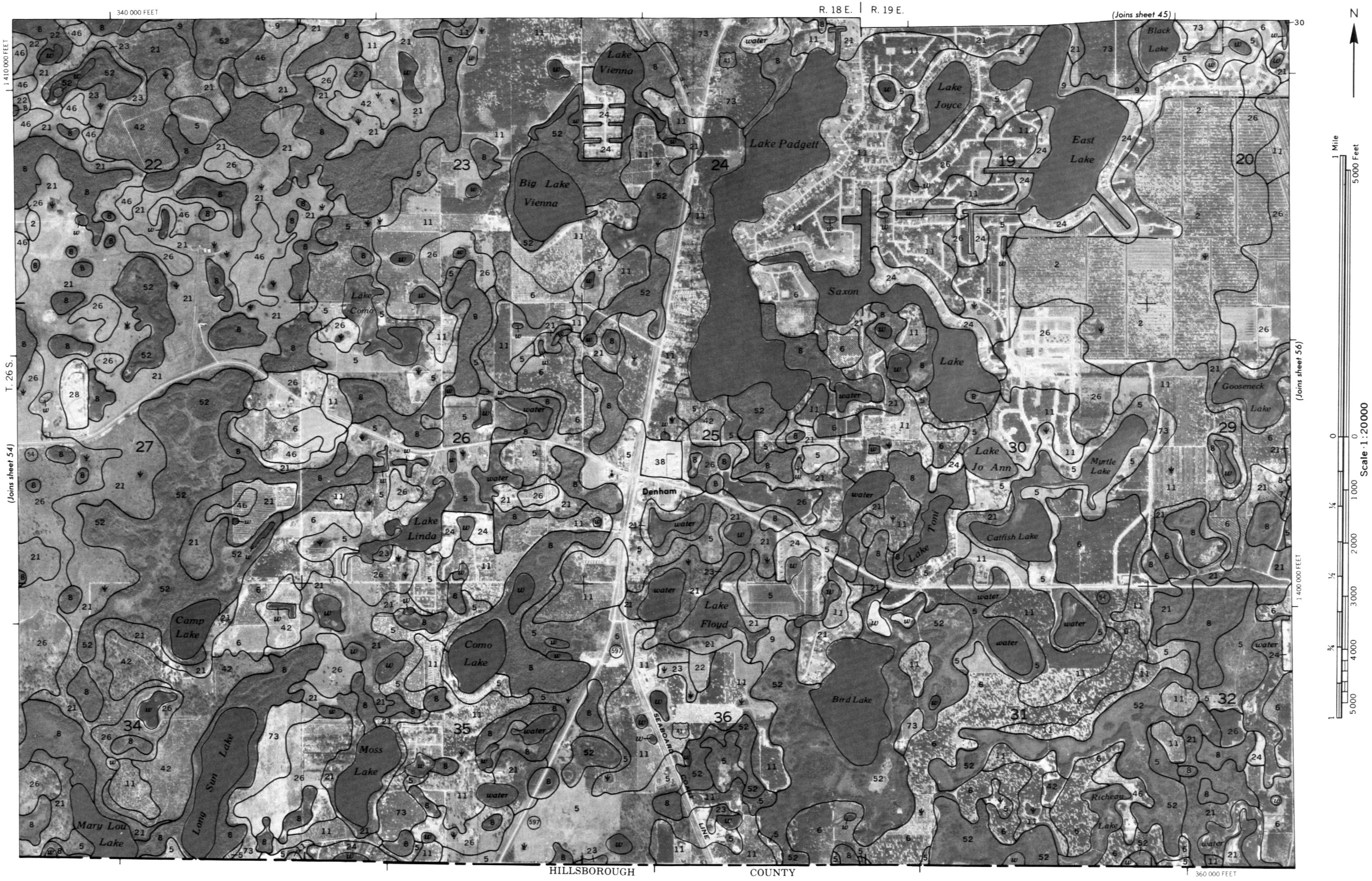
This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

PASCO COUNTY, FLORIDA — SHEET NUMBER 54

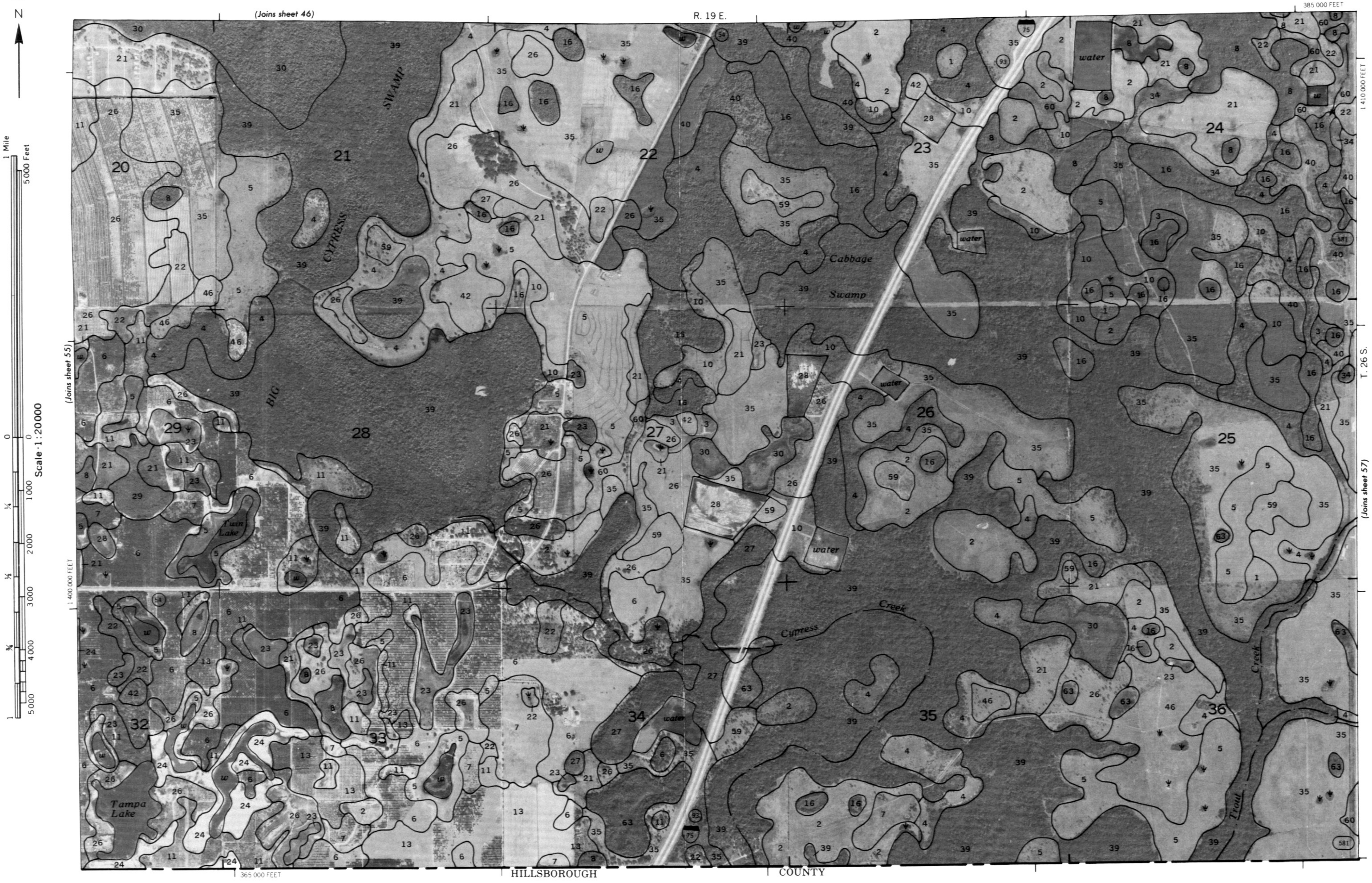


This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

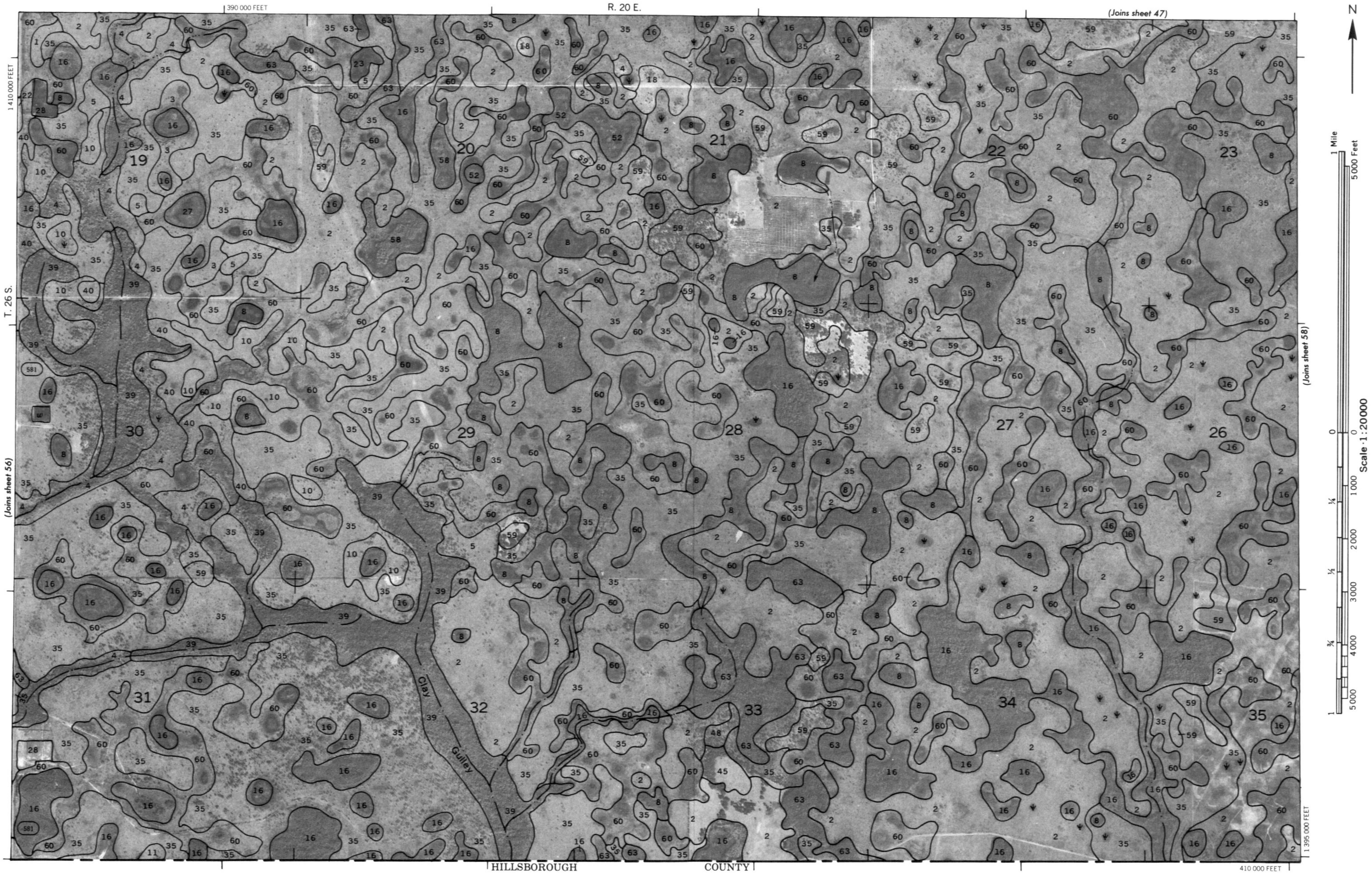


PASCO COUNTY, FLORIDA — SHEET NUMBER 56



This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

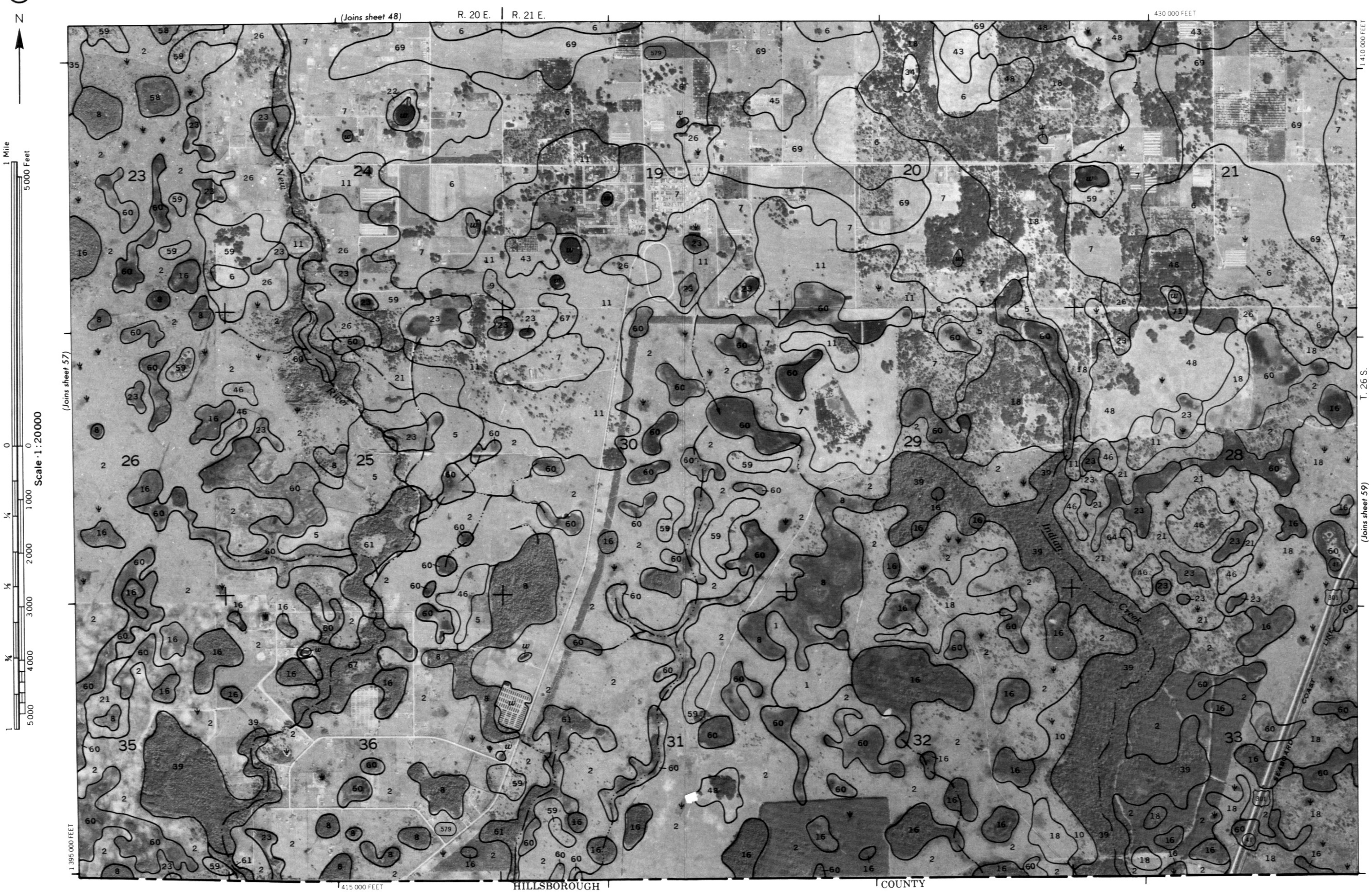
PASCO COUNTY, FLORIDA — SHEET NUMBER 57



This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

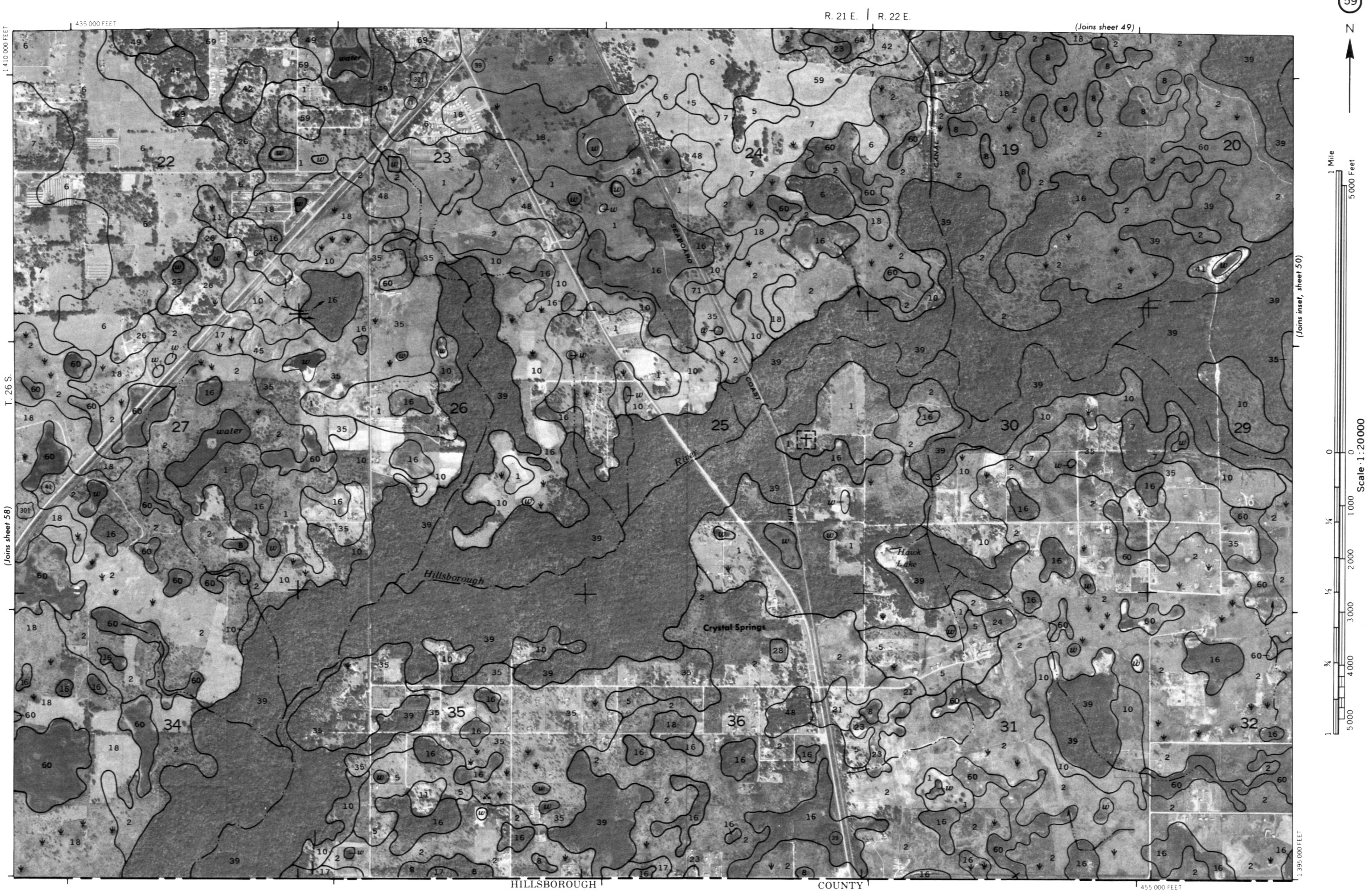
58

PASCO COUNTY, FLORIDA — SHEET NUMBER 58



This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

PASCO COUNTY, FLORIDA — SHEET NUMBER 59



This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.